



**SHREE PORBANDAR JILLA SAHKARI DUDH
UTPADAK SANGH LTD., PORBANDAR
(SUDAMA DAIRY).**



**Tender For
Design, Supply, Installation, Testing, Erection, and Commissioning of
Oil Free Screw Compressor (Nirvana) Air Cooled at Sudama Dairy,
Porbandar Basis.**

PJSDUSL//PRO/2021-2022/KB - 004



Issue letter of tender document for:

**Design, Supply, Installation, Testing, Erection, and Commissioning of
Oil Free Screw Compressor (Nirvana) Air Cooled at Sudama Dairy,
Porbandar.**

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Section I

Bid Invitation

INTRODUCTION

It is proposed to Design, Supply, Installation, Testing, Erection, and Commissioning of Oil Free Screw Compressor (Nirvana) Air Cooled at Sudama Dairy, Porbandar Basis.
at Sudama Dairy, Porbandar, Gujarat.

Tenders are invited from the interested parties on or before last date of tender, from Equipment /Manufacturers / Suppliers / Agencies having good experience and competency in the field of said plants.

The technical and commercial bids should be submitted in Separate Sealed Covers and should be addressed to “**The In-charge Managing Director, Porbandar Jilla Sahkari Dudh Utpadak Sangh Ltd., Porbandar**” duly super scribing as “**Technical Bid**” or “**Commercial Bid**” for “**Design, Supply, Installation, Testing, Erection, and Commissioning of Oil Free Screw Compressor (Nirvana) Air Cooled at Sudama Dairy, Porbandar Basis.**”



Details about Tender:

IFB No / Tender Notice No	PJSDUSL/PR0/2021-2022/ KB - 004
Name of Project	Design, Supply, Installation, Testing, Erection, and Commissioning of Oil Free Screw Compressor (Nirvana) Air Cooled at Sudama Dairy, Porbandar Basis.
Estimated Quantity	Complete job
Period of Completion / Delivery	4 Months
Estimated project cost	Rs. 50 Lakh
	Rupees in Word: Fifty Lakhs only.
Mode of Tender (Bidding Type)	Open
Amount Details	
Bid Document Fee (Tender Fee)	Rs. 10,000/- (Including GST)
	Rupees in Word: Ten thousand only.
Bid Document Fee Payable To	"Porbandar Jilla Sahkari Dudh Utpadak Sangh Ltd., Porbandar"
Bid Earnest Money Deposit (EMD) in Rs.	Rs. 500,000/-
	Rupees in Word: five Lakh only.
Bid EMD / Security In Favor of :	Porbandar Jilla Sahkari Dudh Utpadak Sangh Ltd., Porbandar.
Tender Document Sale Start Date	As per tender notice
Tender Document Sale Last Date	As per tender notice
Date of Pre-Bid Meeting	As per tender notice
Last Date of Submission of Bid	As per tender notice
Opening of Bid	As per tender notice
Bid Validity Period	45 days
Bid Opening Authority	Managing Director, PJSDUSL, Porbandar
Contact Details	7624005877



1. Eligibility Criteria

The bidders must meet the following minimum qualifying criteria:

- 1.1 The Bidder/Supplier shall have turnover, in each of the last 3 (three) years (2019-20, 2020-21, 2021-22), at least equal to the estimated cost of the job and must have executed, in the last five years at least a contract of similar nature and of value not less than 100% of the estimated cost of the job.
- 1.2 The bidder shall possess his previous experience of serving dairy industry for said requirements of project.
- 1.3 The bidder should have valid registration under various acts that may be applicable for the contract proposed.
- 1.4 Copy of income tax returns or two previous years in original or certified true copies, along with Permanent Account Number (PAN) for income tax purpose.
- 1.5 EMD should be furnish for bid opening.
- 1.6 Tender fee should be furnished for bid opening.

Even though the bidder meets the specified criteria, it may be disqualified if it has: Made untrue or false declaration in the forms, statements and attachments submitted in the proof of their qualifications.

2. Purchase of Bidding Document

- 2.1 The bid document may be purchased, in person from Sudama Dairy, Porbandar-360577 by interested bidders on submission of a written application (in duplicate) and payment of non-refundable price of the bid document as mentioned in Bid Invitation.

3. Submission of Bid

- 3.1 The bidders, who purchase the bidding document, are eligible for submission of bids in their name only.
- 3.2 The technical and commercial bids should be submitted in Separate Sealed Covers duly super scribing as "Technical Bid" or "Commercial Bid" for "**Design, Supply, Installation, Testing, Erection, and Commissioning of Oil Free Screw Compressor (Nirvana) Air Cooled at Sudama Dairy, Porbandar Basis**".



4. Earnest Money Deposit

4.1 All bids must be accompanied by Earnest Money Deposit (EMD) in the form specified in the bidding document. The bids not accompanied with EMD shall be summarily rejected. The EMD shall be denominated in Indian Rupees of value as specified and shall be in the form of Demand draft in favour of "Porbandar Jilla Sahkari Dudh Utpadak Sangh Ltd., Porbandar".

5. Opening of Bids

This is a two-stage bid. All the bidders shall submit the bids in Cover I - Technical bid and Cover II- Commercial Bid. The technical bid (Cover I) shall contain all the details except for the price. Only technical bids shall be opened initially on the date and time specified above in the presence of representatives of interested bidders. The date and time of opening of the commercial bid (Cover II) & its revision, if any shall be communicated later to all eligible bidders.

6. Rights Reserved by Purchaser

Porbandar Jilla Sahkari Dudh Utpadak Sangh Ltd., Porbandar at all its sole discretion and without assigning any reason thereof, reserves the right to accept and/or reject the whole or part of any or all the bids received by Managing Director, PJSDUSL.

7. Validity

The offer should be valid for 45 days from the date of tender opening.

❖ Pre-requisites for Bidders

- Bids containing deviations from bidding document terms and other requirements may be rejected.
- Bids not accompanied by bid security (earnest money deposit) shall be summarily rejected.
- Non-compliance with even a minor technical requirement should be specifically stated by the bidders.
- Bidders should furnish their complete address for the purpose of further correspondence pertaining to bidding document.
- Negligence of the bidder in preparing tender bid confers no right to withdraw the bid after it was opened.



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- Specifications, conditions, schedule, and drawings of bidding document constitute an integral part of the bid.
- The bid, along with enclosures, drawings, and technical literature, should be in English only.
- All equipment, system & components should be designed to perform as per specifications in this bidding document under tropical conditions.
- The bidding documents shall be governed and interpreted according to the laws of the Union of India.





Section II

Instructions to Bidder/Suppliers

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1. Cost of Bidding

- 1.1 The Bidder/Supplier shall bear all costs associated with the preparation and submission of its bid, and the Purchaser, will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

2. Contents of Bidding Document

- 2.1 The goods required, bidding procedures and contract terms are prescribed in the Bidding Document. The contents of the Bidding Document are organized in sections as given in the Table of Contents at the beginning of this document.
- 2.2 The Bidder/Supplier is expected to examine all instructions, forms, terms, and specifications in the Bidding Document. Failure to furnish all information required as per the Bidding Document or submission of a bid not substantially responsive to the Bidding Document in every respect will be at the Bidder/Supplier's risk and may result in the rejection of its bid.

3. Clarification of Bidding Document

- 3.1 A prospective Bidder/Supplier requiring any clarification on the Bidding Document may notify the Purchaser in writing by hardcopy/email at the Purchaser's address/mail address indicated in the Invitation for Bids. The Purchaser will respond in writing to any request for clarification on the Bidding Document, which it receives not later than 5 days prior to the deadline for the submission of bids prescribed by the Purchaser. Written copies of the Purchaser's response (including an explanation of the query but without identifying the source of inquiry) will be sent to all prospective Bidder/Suppliers, which have received the Bidding Documents. However, the Bidder/Suppliers cannot consider delay in receipt of clarifications, as a cause for requesting extension in the due date of submission of the bids.

4. Amendment of Bidding

- 4.1 At any time prior to the deadline for submission of bids, the Purchaser may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder/Supplier, modify the Bidding Document by amendment.
- 4.2 The amendment will be notified in writing or by fax or Email to all prospective Bidder/Suppliers, which have received the Bidding Documents and will be binding on them. The amendment will be attached to the bidding document sold subsequently.
- 4.3 In order to afford prospective Bidder/Suppliers reasonable time, in which to take the amendment into account in preparing their bids, the Purchaser may, at its discretion, extend the deadline for the submission of bids.

5. Pre Bid Meeting

The bidder or his official representative is advised to attend a pre bid meeting, if specified in invitation of Bid, which will be convened at the office of purchaser.

Venue and Date of the meeting: As per Bid Invitation

6. Language of Bid

- 6.1 The Bid prepared by the Bidder/Supplier and all correspondence and documents relating to the bid exchanged by the Bidder/Supplier and the Purchaser shall be written in the **English language**. Any printed literature furnished by the Bidder/Supplier may be written in



another language so long as **accompanied by an English translation** of its pertinent passages in which case, for the purposes of interpretation of the bid, the English translation shall govern.

7. Documents Comprising the Bid

7.1 The bid prepared by the Bidder/Supplier shall comprise the following Components-documents:

Cover I (Technical Bid)

1. A complete description of the goods and services the bidder intends to supply, install and commission.
2. A documentary evidence in respect to qualification and eligibility criteria.
3. EMD
4. Tender fee
5. Detailed technical offer with layouts, sections, GA Drawings.
The complete tender document duly stamped and signed by the bidder shall be submitted and shall be part of technical bid. Bidders shall also submit the equipments with their quantities considered under import and also the list of indigenous equipments with their quantities.
6. Supportive documents for Fulfilling the eligibility criteria of bidder.
7. A statement of deviation and exception to the provision of bidding documents.

Cover II (Commercial Bid)

1. A price schedule completed in accordance with clause No 09, 10 and 11.
- 7.2 The documentary evidence of the Bidders qualifications to perform the Contract if its bid is accepted, shall establish to the Purchasers satisfaction that the bidder has the financial, technical and production capability necessary to perform the contract.
- 7.3 That, in case of a Bidder not doing business within the Purchasers country, the Bidder is or will be (if successful) represented by an agent in the purchaser's country equipped and able to carry out the Suppliers maintenance, repair and spare parts stocking obligations prescribed by the conditions of the Contract and/or Technical Specifications.
- 7.4 Even though the bidders meet the above criteria, they are subject to be disqualified if they have:
 - Made untrue or false representations in the forms, statements and attachments submitted in proof of the qualification requirements; and/or,
 - Record of poor performance such as abandoning the work, not properly completing the contract, inordinate delays in completion, or financial failures etc.
- 7.5 Notwithstanding anything stated above, the purchaser reserves the right to assess the Bidders capabilities and capacity to execute the contract satisfactorily before deciding on award.
- 7.6 Documentary evidence established in accordance with Clause 3 that the Goods and ancillary Services to be supplied by the Bidder are eligible Goods and Services and conform to the Bidding Documents:



- a. The documentary evidence of the Goods and Services eligibility shall consist of a statement in the Price Schedule on the country of origin of the Goods and services offered which shall be confirmed by a certificate of origin issued at the time of shipment.
- b. The documentary evidence of the Goods' and Services' conformity to the Bidding documents may be in the form of literature, drawings, and data, and shall furnish:
 - I. A detailed description of the goods essential technical and performance characteristics.
 - II. A list giving full particulars, including available sources of all spare parts, special tools, etc. Necessary for the proper and continuing functioning of the Goods for a period of two years, following commencement of use by the Purchaser, and

8. Bid Form

- 8.1 The Bidder/Supplier shall complete the Bid Form and appropriate Price Schedule furnished in the Bidding Document, indicating for the goods to be supplied, a brief description of the goods, their country of origin, quantity, and prices.

9. Bid Prices

- 9.1 The Bidder/Supplier shall indicate on the appropriate Price Schedule attached to this document the total bid prices of the goods it proposes to supply, install and commission under the contract. To this end, the Bidder/Suppliers are allowed the option to submit bids for anyone or more packs specified in the "Schedule of Requirement" and to offer discounts for combined packs. However, Bidder/Suppliers must submit a bid for the complete requirement of goods and services specified under each pack, failing which, such bids will not be taken into account for evaluation & comparison and will not be considered for award.
- 9.2 Prices indicated on the Price Schedule shall be entered separately in the following manner:
 - a. The item wise price of goods mentioned in the SOQ and basis of design to be supplied shall be on FOR site basis inclusive of applicable taxes & duties. The item wise price shall also include the charges for packing and forwarding, transportation, transit insurance and all other local costs incidental to delivery of the goods to their final destination, storage insurance and safe custody at site.
 - b. The item wise price of installation, testing and commissioning as described in the technical specifications/ SOQ / requirement mentioned in basis of design and in accordance with Special Conditions of Contract with regard to erection, testing and putting the equipment into satisfactory operation including successful completion of performance and guarantee tests to be performed at the final destination by the bidder should be indicated separately and shall be inclusive of applicable taxes and duties.
 - c. The cost-of-service cover / incidental services listed in Clause 8 of the Special Conditions of Contract Part-I; and
 - d. The bidder should also submit the price schedule summary.
- 9.3 The Bidders separation of price components in accordance with Para. 11.2 above will be solely for the purpose of facilitating the comparison of bids by the Purchaser and will not in any way limit the Purchasers right to contract on any of the terms offered.



9.4 Price

Bidder shall submit their offers in INR only.

9.5 Price Break-up

The bidder shall also submit the itemized price breakup separately mentioning basic price, P&F, GST, Freight, Insurance, I&C, etc. as applicable which will be applicable for progressive payments. Items and works for which no break-up price is furnished by the bidder will not be paid for by the purchaser when supplied / executed and shall be deemed covered by the other break-up prices. Wherever items are mentioned in terms of length, prices should be quoted on per meter basis.

However, for evaluation purpose, prices quoted as indicated in Para 8.2 above only will be considered.

Wherever there is more than one item, unit rates should be indicated separately.

9.6 Notwithstanding anything stated elsewhere in the bidding documents, irrespective of mode of the contracting with the successful bidder, the successful bidder will be liable for the payment of Indian Income Tax, surcharge on Income Tax and any other Corporate Tax, turnover tax etc. if attracted under the provisions of the law. The purchaser shall not bear any tax liability whatsoever irrespective of the mode of contracting.

9.7 Price of spare parts All the Bidder/Suppliers are required to submit the following details about the spare parts, along with their bids:

- Spare parts required for the items quoted by the Bidder/Suppliers, for 1 years normal operation.
- Item wise prices of all the spare parts valid, for acceptance by the Purchaser and placement of orders, for two years from the date of bid opening.
- The prices of the spares shall be optional for evaluation.

10. Bid Currency

10.1 For all goods and services covered in this Bidding Document, prices shall be quoted in Indian Rupees only.

11. Documents Establishing Bidder/Supplier's Experience and Qualifications

11.1 Pursuant to Clause 6 the Bidder/Supplier shall furnish, as part of its bid, documents establishing the Bidder/Supplier's qualifications to perform the Contract if its bid is accepted. The Bidder/Supplier should also give information in the format attached to the Bidding Document.

- The documentary evidence of the Bidder/Supplier's qualifications to perform the Contract if its bid is accepted, shall establish to the Purchaser's satisfaction
- That in the case of a Bidder/Supplier offering to supply goods and services under the Contract which the Bidder/Supplier did not manufacture or otherwise produce, the Bidder/Supplier has been duly authorised by the goods' manufacturer or producer to supply the goods. The bid shall include manufacturer's authorisation form given in the bidding documents.



- That the Bidder/Supplier has the financial, technical and production capability necessary to perform the Contract. To ascertain this, all bids submitted shall include the information along with qualification application.
- Copies of original documents defining the constitution or legal status, place of registration and principal place of business of the company or firm or partnership, etc.;
- Details of experience and past performance of the Bidder/Supplier on equipment offered and those of similar nature and those of similar nature within the past 5 years and details of current contracts in hand and other commitments.
- Major items of plant and equipment available/ installed in the Bidder/Supplier's factory premises.
- Qualification and experience of key personnel for successful execution of the contract.
- Reports on financial standing of the Bidder/Supplier such as profit and loss statements, balance sheets and, auditor's report of the past three years, bankers' certificates etc.
- Information regarding any current litigation in which the Bidder/Supplier is involved

11.2 Bidder/Suppliers who meet the criteria given above are subject to be disqualified if they have made untrue or false representations in the forms, statements and attachments submitted in proof of the qualification requirements or have record of poor performance such as abandoning the work, not properly completing the contract, inordinate delays in completion or financial failures etc.

12. Documents Establishing Goods' Conformity to Bidding Document

12.1 Pursuant to **Clause 5** the Bidder/Supplier shall furnish, as part of its bid, documents establishing the conformity to the Bidding Document of all goods and services, which the Bidder/Supplier proposes to supply under the Contract.

- The documentary evidence of the goods' and services' conformity to the Bidding Document may be in the form of **literature, drawings, and data**, and shall furnish:
- A detailed description of the goods' essential technical and performance characteristics
- A list giving full particulars, including available sources and current prices, of all spare parts, special tools, etc. necessary for the proper and continuing functioning of the goods for a period of two years, following commencement of the goods' use by the Purchaser; and
- A **clause-by-clause commentary on the Purchaser's Technical Specifications** demonstrating the goods and services' substantial responsiveness to those specifications or a statement of **deviations and exceptions** to the provisions of the Technical Specifications.

12.2 The purposes of the commentary to be furnished pursuant to above, the Bidder/Supplier shall note that standards for workmanship, material and equipment, and references to brand names or catalogue numbers designated by the Purchaser in its Technical Specifications are intended to be **descriptive only and not restrictive**. The Bidder/Supplier may substitute alternative standards, brand names and/or catalogue numbers in its bid, provided that it demonstrates to the Purchaser's satisfaction that the substitutions are substantially equivalent or superior to those designated in the Technical Specifications.

13. Bid Security

13.1 The bid security is required to protect the Purchaser against the risk of Bidder/Supplier's conduct, which would warrant the security forfeiture.



13.2 The bid security shall be denominated in Indian Rupees as mentioned in Bid Invitation.

13.3 Any bid not accompanied with bid security in accordance will be rejected by the purchaser as non-responsive.

13.4 The successful Bidder/Supplier's bid security will be discharged upon the Bidder/Supplier's executing the Contract agreement on acceptance of the order & furnishing the performance security.

13.5 Bank guarantee shall be furnished 10% of total cost of project and validity of BG shall be 365 days. Validity may be change according to discretion of purchaser.

13.6 The bid security may be forfeited:

- If a Bidder/Supplier withdraws its bid during the period of bid validity specified by the Bidder/Supplier on the Bid Form; or
- In the case of the successful Bidder/Supplier, if the Bidder/Supplier fails (a) to sign the Contract in accordance and/or (b) to furnish performance security in accordance.

14. Period of Validity of Bids

14.1 Bids shall remain valid for 45 days after the last date of submission of the bids prescribed by the Purchaser. A bid valid for a shorter period may be rejected by the purchaser as non-responsive.

14.2 In exceptional circumstance, the Purchaser may prior to expiry of the initial validity period, solicit the Bidder/Suppliers' consent to an extension of the period of validity. The request and the responses thereto shall be made in writing (or by mail or fax). The bid security provided under Clause 11 shall also be suitably extended. A Bidder/Supplier may refuse the request without forfeiting its bid security. A Bidder/Supplier granting the request will not be required nor permitted to modify its bid.

15. Format and Signing of Bid

15.1 The Bidder/Supplier shall prepare two copies of the bid, clearly marking each "Original" and "Copy" as appropriate. In the event of any discrepancy between them, the original shall govern.

15.2 The original and all copies of the bid shall be typed or written in indelible ink and shall be signed by the Bidder/Supplier or a person or persons duly authorized to bind the Bidder/Supplier to the Contract. Written power-of-attorney must accompany the Bid to indicate the authorization. The person or persons signing the bid shall initial all pages of the bid, except for laminated printed literature.

15.3 The bid shall contain no interlineations, erasures or overwriting except as necessary to correct errors made by the Bidder/Supplier, in which case, the person or persons signing the bid shall initial corrections.

16. Sealing and Marking of Bids

16.1 The Bidder/Suppliers shall seal the original and each copy of the bid in an outer envelope, duly marking the envelopes as "original" and "copy."

16.2 All the inner and outer envelopes shall be addressed to the Purchaser and must bear the Bids Invitation reference number.

16.3 All the envelopes should bear the word "DO NOT OPEN BEFORE (The time and date of opening as specified).



16.4 The inner envelopes shall indicate the name and address of the Bidder/Supplier to enable the bid to be returned unopened in case it is declared "late."

16.5 If the outer envelope is not sealed and marked as required, the Purchaser will assume no responsibility for the bid's misplacement or premature opening. A bid opened prematurely for this cause will be rejected by the Purchaser and returned to the Bidder/Supplier.

17. Deadline for Submission of Bids

17.1 The Purchaser at the address specified must receive bids not later than the time specified for receipt of the bids.

17.2 The Purchaser may, at its discretion, extend this deadline for the submission of bids by amending the Bidding Document in accordance with above in which case all rights and obligations of the Purchaser and Bidder/Suppliers previously subject to the deadline will thereafter be subject to the deadline as extended.

17.3 No mail/fax bids shall be considered. However, any amendment sent by a mail or fax to the bid already submitted/ received shall be considered provided it is received before the due date and time of opening of the bids and it is confirmed in writing by post.

18. Late Bids

Any bid received by the Purchaser after the deadline for submission of bids prescribed by the Purchaser, pursuant of Clause 16 will be rejected and returned unopened to the Bidder/Supplier.

19. Modification and Withdrawal of Bids

19.1 No bid may be modified subsequent to the deadline for submission of bids.

19.2 No bid may be withdrawn in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the Bidder/Supplier on the Bid Form. Withdrawal of a bid during this interval may result in the forfeiture of the Bidder/Supplier's bid security, pursuant to Clause 12.

20. Opening of Bids by Purchaser

20.1 The Purchaser will open the bids, in the presence of the Bidder/Suppliers' representatives who choose to attend, at the time and date specified in the Invitation for bids, at the office of the purchaser. The Bidder/Suppliers' representatives who are present shall sign a register/ form evidencing their attendance.

20.2 The Bidder/Suppliers' names, bid prices, modifications, bid withdrawals and the presence or absence of the requisite bid security and such other details as the purchaser, at its discretion, may consider appropriate will be announced during the opening of the bids.

21. Clarification of Bids

To assist in the examination, evaluation, and comparison of bids the Purchaser may, at its discretion, ask the Bidder/Suppliers for a clarification of its bid. The request for clarification and the response shall be in writing and no change in the price or substance of the bid shall be sought, offered, or permitted.

22. Preliminary Examination

22.1 The Purchaser will examine the bids to determine:

- Whether they are complete,



- Whether any computational errors have been made,
- Whether required sureties have been furnished,
- Whether the documents have been properly signed,
- Whether the bids are generally in order.

22.2 Arithmetical errors will be rectified on the following basis:

- If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected. If the Bidder/Supplier does not accept the correction of the errors, its bid will be rejected. If there is a discrepancy between words and figures, the amount in words will prevail.

22.3 Prior to the detailed evaluation, pursuant to Clause 22, the Purchaser will determine the substantial responsiveness of each bid to the Bidding Document. For purposes of these clauses, a substantially responsive bid is one, which conforms to all the terms and conditions of the Bidding Document without material deviations. The Purchaser's determination of a bid's responsiveness is to be based on the contents of the bid itself without recourse to extrinsic evidence.

22.4 If the prices of certain components/sub-assemblies/spare parts are not included, the Purchaser will load the offer with the cost of these in evaluation if goods/equipment/plant is functional. If the Purchaser considers that without these the goods/equipment is not functional, then the bid will be treated as incomplete and non-responsive.

22.5 To facilitate loading incomplete bids, the highest cost of such components offered by other Bidder/Suppliers or the estimated cost of such components in the opinion of the Purchaser or other Purchases similarly made based on past experience shall be considered for loading incomplete bids.

22.6 Since the bid is invited for the complete job of design, supply, installation, and commissioning of the equipment/plant, the incomplete or part bids submitted by any Bidder/Supplier may not be considered for evaluation and may be liable for rejection.

22.7 A bid determined as not substantially responsive will be rejected by the Purchaser and may not subsequently be made responsive by the Bidder/Supplier by correction of the nonconformity.

22.8 The Purchaser may waive any minor informality or nonconformity or irregularity in a bid, which does not constitute a material deviation, provided such waiver, does not prejudice or affect the relative ranking of the Bidder/Supplier.

23. Evaluation and Comparison of Bids

23.1 The Purchaser will evaluate and compare the bids previously determined to be substantially responsive, pursuant to Clause 21. No bid will be considered if the complete requirement covered under this work is not included in the bid. However, the discounts offered by the Bidder/Suppliers, if any, will be taken into account in the evaluation of bids so as to determine the bid offering the lowest evaluated cost for the Purchaser in deciding award of contract/s.

23.2 The Purchaser's evaluation of a bid will include and take into account, in the case of goods manufactured in India or goods of foreign origin already located in India, sales and other



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similar taxes, which will be payable on the goods if a contract is awarded to the Bidder/Supplier.

23.3 The comparison shall be of free delivery at site basis including unloading and inclusive of all taxes (sales, works contract etc.) and duties (customs, countervailing, excise etc.) of the goods offered from within India, such price to include all costs as well as duties and taxes paid or payable on components & raw material incorporated in the goods as well as taxes & duties payable on finished goods and the installation and commissioning costs as per the provisions in the technical specification.

23.4 The Purchaser's evaluation of a bid will take following into account:

- a) Preference will be given to bidder who can supply, install, test and commission whole plant (including all sections) mentioned in the tender, and quality and adaptability of the equipment offered.
 - b) Delivery schedule offered in the bid;
 - c) The availability of spare parts and after-sales services for the equipment offered in the bid;
 - d) Preference may be awarded for the foreign machine supplier, if they have own counterparts established in India on submission of related documents at the time of Bid.
- Cost of inland transportation, insurance, and other costs within India incidental to delivery of the goods to their final destination and applicable duties payable by the Supplier;
 - The cost of components and service;
 - Deviation in payment schedule from that specified in the Special Conditions of Contract
 - The performance and productivity of the equipment offered

23.5 Pursuant to above of Clause 21, the following evaluation methods will be followed:

- Inland Transportation, ex-factory/ Insurance, and Incidentals: For the goods offered, the Bidder/Suppliers must quote separately for inland transportation, insurance, and other incidentals for delivery of goods to the project site as stated in Clause 8.
- Delivery Schedule: The Purchaser desires to have delivery of the goods covered under the invitation, at the time specified in the Schedule of Requirements. The estimated time of arrival of the goods at the project site/ destination should be calculated for each bid after allowing for reasonable transportation time.
- Bidder/Suppliers shall state their bid price for the payment schedule outlined in the Special Conditions of Contract.
- The goods/ plant offered shall have the guaranteed performance with regard to the rated capacity and operating parameters specified in the technical specifications related to Process performance and consumption guarantees.

23.6 If it is found that any Bidder/Supplier for any reason indicates impractical or impossible data to arrive performance guarantees, such data shall be corrected and all the calculations shall be based on the data furnished by the highest Bidder/Supplier for the purpose of comparison.

24. Contacting the Purchaser

24.1 Subject to Clause 21 & 22, **no Bidder/Supplier shall contact the Purchaser** on any matter relating to its bid, from the time of the bid opening to the time the Contract is awarded.



24.2 Any effort by a Bidder/Supplier to influence the Purchaser in the Purchaser's bid evaluation, bid comparison or contract award decisions may result in the rejection of the Bidder/Supplier's bid.

25. Post-qualification

25.1 In the absence of pre-qualification, the Purchaser will determine to its satisfaction whether the Bidder/Supplier selected as having submitted the lowest evaluated responsive bid is qualified to satisfactorily perform the Contract.

25.2 The determination will take into account the Bidder/Supplier's financial, technical and production capabilities. It will be based upon an examination of the documentary evidence of the Bidder/Supplier's qualifications submitted by the Bidder/Supplier, pursuant to Clause 9 as well as such other information as the Purchaser deems necessary and appropriate including details of experience and records of past performance.

25.3 An affirmative determination will be a prerequisite for award of the Contract to the Bidder/Supplier. A negative determination will result in rejection of the Bidder/Supplier's bid, in which event; the Purchaser will proceed to the next lowest evaluated bid to make a similar determination of that Bidder/Supplier's capabilities to perform satisfactorily.

25.4 Subject to Clause 25, the Purchaser will award the contract to the successful Bidder/Supplier whose bid has been determined to be substantially responsive and has been determined as the lowest evaluated bid provided further that the Bidder/Supplier is determined to be qualified to perform the contract satisfactorily as per Clause 21 and 22.

26. Right to Vary Quantities at the Time of Award

The Purchaser reserves the right to vary the quantities at the time of award of contract, if the need arises, in consultation with successful bidder.

27. Right to Accept any Bid and to Reject Any or All Bids

The Purchaser reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids at any time prior to award of Contract, without thereby incurring any liability to the affected Bidder/Supplier or Bidder/Suppliers or any obligation to inform the affected Bidder/Supplier or Bidder/Suppliers of the grounds for the Purchaser's action.

28. Notification of Award

28.1 Prior to expiration of the period of bid validity, the Purchaser may notify the successful Bidder/Supplier in writing by registered letter or mail or fax to be confirmed in writing by registered letter, that its bid has been accepted.

28.2 The notification of award will constitute the formation of the Contract.

28.3 Upon the successful Bidder/Supplier's acceptance of the Purchase Order and signing of the contract agreement, the Purchaser will promptly notify each unsuccessful Bidder/Supplier and will discharge its EMD.

29. Signing of Contract

29.1 At the same time as the Purchaser notifies the successful Bidder/Supplier that its bid has been accepted, the Purchaser will send the Bidder/Supplier the Contract Form /Purchase Order incorporating all agreements between the parties.



29.2 Within 15 days of receipt of the Contract, the successful Bidder/Supplier shall return the duplicate copy of the Order duly signed and sealed in token of acceptance of the order to the Purchaser.

30. Import License

For the goods of foreign origin, if any, offered on CIF/DAP/CIP basis, the import license shall have to be arranged by the Purchaser and the details of such license shall be notified to the successful bidder. In case of goods offered from within India and for which a contract is awarded, if any import is required the license shall be arranged by bidders themselves.

31. Turn-key Contract

All the Bidder/Suppliers should quote for the design, supply, installation, testing, erection, and commissioning of equipment as detailed in this bidding document on turn-key basis within the scope specified in the technical specification. The Purchaser shall, however, be at liberty to award the contract for the part or whole of the work.

32. Break-up prices

All the Bidder/Suppliers shall furnish the cost separately for the supply and installation/commissioning along with detailed cost break-up (item-wise), which will be applicable for progressive payments. Items and works for which no break-up price is furnished by the Bidder/Supplier will not be paid for by the Purchaser when supplied/executed and shall be deemed covered by other break-up prices. Such break up cost should be based on ex-works cost and percentage of ex-works cost should be indicated separately for packing and forwarding, transportation, insurance and other incidental charges, erection, and commissioning on percentage basis for each item.

33. Delivery Schedule of items

Bidder/Suppliers should submit a detailed item wise delivery schedule keeping in view the completion period of the contract. Such items shall be grouped under monthly delivery schedule with total value of such items. This will facilitate for ensuring the cash flow requirement for the project.



Section III

General Conditions of Contract

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1. Definitions

- 1.1 In this Contract, the following terms shall be interpreted as indicated:
- 1.2 "The Contract" means the agreement entered between the Purchaser and the Bidder/Supplier, including all attachments and appendices thereto and all documents incorporated by reference therein.
- 1.3 "The **Contract Price**" means the **price payable** to the Bidder/Supplier under the Contract for the full and proper performance of its contractual obligations.
- 1.4 "The **Goods**" means all the equipment, machinery, and/or other materials, which the Bidder/Supplier is required to supply to the Purchaser under the Contract.
- 1.5 "**Services**" means services ancillary to the supply of the Goods, such as transportation and insurance, and any other incidental services, such as installation, commissioning, provision of technical assistance, training and other such obligations of the Bidder/Supplier covered under the Contract.
- 1.6 "The **Purchaser**" means the Organization purchasing the Goods and services and would include the term "**Owner**".
- 1.7 "The **Bidder/Supplier**" means the individual or firm supplying the Goods and services under this Contract would include also the terms "**contractor**" or "**Bidder/Supplier**".
- 1.8 **Engineer-in-charge** means the Engineer designated as such or other Engineer appointed from time to time by the Purchaser and notified in writing to the Bidder/Supplier to act as Engineer-in-charge for the purposes of contract.

2. Application

- 2.1 These General Conditions shall apply to the extent that provisions in other parts of the Contract do not supersede them.

3. Definition of Country of origin

- 3.1 For purpose of this Clause "**origin**" means the **place** where the Goods were mined, grown, or produced, or from which the Services are supplied. Goods are produced when, through manufacturing, processing, or substantial and major assembling of components, a commercially recognized new product results that is substantially different in basic characteristics or in purpose or utility from its components. The origin of Goods and Services is distinct from the nationality of the Bidder/Supplier.

4. Standards

- 4.1 The Goods supplied under this Contract shall conform to the standards mentioned in the Technical Specifications, and, when no applicable standard is mentioned, to the latest Indian Standards.

5. Use of Contract Documents and Information

- 5.1 The Bidder/Supplier **shall not**, without the Purchaser's prior written consent, **disclose the Contract**, or any provision thereof, or any specification, plan, drawing, pattern, sample or information furnished by or on behalf of the Purchaser in connection therewith, to any person other than a person employed by the Bidder/Supplier in the performance of the Contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far as may be necessary for purposes of such performance.



- 5.2 The Bidder/Supplier **shall not, without the Purchaser's prior written consent**, make use of any document or information except for purposes of performing the Contract.
- 5.3 Any document, other than the Contract itself, shall remain the property of the Purchaser and shall be returned (in all copies) to the Purchaser on completion of the Bidder/Supplier's performance under the Contract if so required by the Purchaser.

6. Patent Rights

- 6.1 The Bidder/Supplier shall **indemnify the Purchaser** against all third-party claims of infringement of patent, trademark or industrial design rights arising from use of the Goods or any part thereof.

7. Inspection and Tests

- a. The Purchaser or its representative shall have the **right to inspect** and/or test the Goods to confirm their conformity to the Contract. The Special Conditions of Contract and/or the Technical Specifications shall specify what inspections and tests the Purchaser requires and where they are to be conducted. The Purchaser shall notify the Bidder/Supplier in writing of the identity of any representatives, if retained for these purposes.
- b. The inspections and tests may be conducted on the date of delivery and/or at the Good's final destination. Where conducted on the premises of the Bidder/Supplier or its subcontractors(s), all reasonable facilities and assistance including access to drawings and production data shall be furnished to the inspectors at no charge to the Purchaser. In case of any defects or deficiency notified by the Purchaser's inspection authority, the Bidder/Supplier will rectify and make good the same without delay and not proceed with further processing of such item(s) of Goods without obtaining approval from the inspection authority.
- c. Should any inspected or tested Goods fail to conform to the Specifications, the Purchaser may reject them and the Bidder/Supplier shall either replace the rejected Goods or make all alterations necessary to meet specification requirements free of cost to the Purchaser.
- d. The Purchaser's right to inspect, test and, where necessary, reject the Goods after the Goods' arrival at the destination shall in no way be limited or waived by reason of the Goods having previously been inspected, tested and passed by the Purchaser or its representative prior to the Goods shipment from the country of origin.
- e. **Tests upon completion (for Supply, installation & commissioning contracts)**
- i. The Supplier shall give to the Purchaser 21 days' notice of the date after which he will be ready to make the tests of completion (the Test). Unless otherwise agreed, the Tests shall take place within 14 days after the said date on such day or days, as the Purchaser shall notify the Supplier.
- ii. If the Purchaser fails to appoint a time after having been asked to do so, or does not attend at the time and place appointed, the Supplier shall be entitled to proceed with the Tests in his absence. The tests shall then be deemed to have been made in the presence of the Purchaser and the results of the Tests shall be accepted as accurate.
- iii. If the Tests are being unreasonably delayed by the Supplier the Purchaser may give notice requiring the Supplier to make the tests within 21 days after the receipt of such notice. The supplier shall make the Tests on such days within that period as the Supplier may fix and of which he shall give notice to the Purchaser.



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If the Supplier fails to make the Tests within 21 days the Purchaser may himself proceed with the Tests. All tests so made by the Purchaser shall be at the risk and cost of the Supplier and the cost thereof shall be deducted from the Supplier's price. The test shall then be deemed to have been made in the presence of the Supplier and results of the tests shall be accepted as accurate.

- iv. If the Goods/services or any section fails to pass the Tests, the Supplier may require such tests to be repeated on the same terms and conditions. All costs to which the Purchaser may be put to by the repetition of the tests under this sub- clause or under sub clause 8.5.14 shall be deducted from the Contract Price.
- v. If the Purchaser and the Supplier disagree on the interpretation of the test results each shall give a statement of his views to the other within 14 days after such disagreement arises. The statement shall be accompanied by all relevant evidence. The Purchaser will review both the statements and render a final decision within a further period of fourteen (14) days, which shall be binding on the Supplier,
- vi. If the Goods/Services or any Section fails to pass the Tests on the repetition thereof under sub-clause 8.5.4 the Purchaser after due consultation with the Supplier, shall be entitled to:
 - a. Order one further repetition of the Tests under the conditions of sub-clause 7.5.4
 - Or
 - b. Reject the Goods or a section thereof in which event the Purchaser shall have the same remedies against the Supplier as are provided under sub-clause 7.5.12.
 - c. Issue a taking over certificate, if the Purchaser so wishes, notwithstanding that the Goods are not complete. The Supplier's price shall then be reduced by such amount as may be agreed to by the Purchaser and the Supplier or failing an agreement, as may be determined through arbitration.
- vii. In considering the results of tests carried out under sub-clause 7.5.11 and 7.5.14 and the Purchaser shall make allowances for the effect of any use of the Goods by him on the performance or other characteristics of the Goods.
- viii. As soon as the Goods I Services or any section thereof has passed the tests, the Purchaser shall issue a certificate to the Supplier to that effect.
- ix. The Goods and Services shall be accepted by the Purchaser when they have been completed in accordance with the contract, except in minor respects that do not affect the use of the Goods for their intended purposes and having passed the tests on completion and a taking over certificate has been issued or deemed to have been issued in accordance with-sub-clause 7.5.10.
- x. The Supplier may apply by notice to the Purchaser for a taking over certificate not earlier than 14 days before the goods will in the Supplier's opinion be complete and ready for taking over under sub-clause 7.5.9.

The Purchaser shall within 28 days after the receipt of the Supplier's application either:

- a. Issue the taking over certificate to the Supplier stating the date on which the works were complete and ready for taking over, or
- b. Reject the application giving his reasons and specifying the work required to be done by the Supplier to enable the taking over certificate to be issued.

If the Purchaser fails either to issue the taking over certificate or to reject the Suppliers application within the period of 28 days he shall be deemed to have issued the taking over certificate on the last day of that period.

If the services are divided by the Contract into sections, the Supplier shall be entitled to apply for separate taking over certificate for each such section.

- xi. The Purchaser shall not use any part of the Goods unless taking over certificate has been issued in respect thereof.



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- xii. If never the less the Purchaser uses any part of the Goods that part which is used shall be deemed to have been taken over at the date of such use. The Purchaser shall on request of the Supplier issue a taking over certificate accordingly. If the Purchaser uses any part of the Goods before taking over, the Supplier shall be given the earliest opportunity of taking such steps as may be necessary to carry out the tests on completion.
- If the Supplier fails to remedy a defect or damage pointed out by the Purchaser within a reasonable time, the Purchaser may fix a final time for remedying the defect or damage.
- If the Supplier fails to do so, the Purchaser may:
- a. Carry out the work himself or by others at the Supplier's risk and cost, provided that he does so in a reasonable manner. The costs properly incurred by the Purchaser in remedying the defect or damage shall be deducted from the Contract Price, but the Supplier shall have no responsibility for such work, or
 - b. Require the Supplier to grant the Purchaser a reasonable reduction in the Contract Price to be agreed or fixed by arbitration or
 - c. If the defect or damage is such that the Purchaser has been deprived of substantially the whole of the benefits of the Goods or a part thereof, he may terminate the Contract, in respect of such parts of the Goods as cannot be put to the intended use. The Purchaser shall, to the exclusion of any remedy be entitled to recover all sums paid in respect of such parts of the Goods together with the cost of dismantling the same, clearing the site and returning plant to the Supplier or otherwise disposing of it in accordance with the Suppliers instructions.
- xiii. If the defect or damage is such that repairs cannot be expeditiously carried out on the site, the Supplier may with the consent of the Purchaser remove from the site for the purpose of repair any part of the works which is defective or damaged, after furnishing a suitable guarantee as may be prescribed by the Purchaser.
- xiv. If the replacement or renewals are such that they may affect the performance of the services, the Purchaser may request that the tests on completion be repeated to the extent necessary. The request shall be made by notice within 28 days after the replacement or renewal. The tests shall be carried out in accordance with clauses 8.5.1 to 8.5.3.
- xv. Until the final certificate of commissioning has been issued, the Supplier shall have the right of access to all parts of the Goods and to the records of the working and performance of the Goods and Services.
- Such right of access shall be during the Purchaser's normal working hours at the Supplier's risk and cost. Access shall also be granted to any duly authorized representative of the Supplier whose name has been communicated in writing to the Supplier.

Subject to the Purchasers approval, the Supplier may also at his own risk and cost make any tests, which he considers desirable.

- xvi. The Supplier shall not be liable for any defect resulting from designs furnished or specified by the Purchaser.
- f. The Supplier shall, if required by the Purchaser in writing, search for the cause of any defect, under the directions of the Purchaser. Unless the defect is one for which the Supplier is liable under this clause, the cost of the services carried out by the Supplier in searching for the cause of the defect shall be added to the Contract Price Nothing in this clause shall in any way release the Bidder/Supplier from any warranty or other obligations under this Contract.

8. Packing and Marking

- a. The Bidder/Supplier shall provide such packing of the Goods as is required to prevent their damage or deterioration during transit to their final destination as indicated in the Contract.



The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to temperature, salt and precipitation during transit and open storage. Packing case size and weights shall take into consideration, where appropriate, the remoteness of the Goods' final destination and the absence of heavy handling facilities at all points in transit.

- b. The packing, marking and documents within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the Contract and, subject to **Clause 17**, in any subsequent instructions ordered by the Purchaser.
- c. Each package shall be marked to indicate a) Name of the Bidder/Supplier, b) Details of items in the package, c) Name of the Consignee, d) Purchase Order Number, e) Gross, net and tare weights of the item, f) Destination.

9. Delivery and Documents

- a. Delivery of the goods shall be made by the Bidder/Supplier in accordance with the terms specified by the Purchaser in its Schedule of Requirements and the Special Conditions of Contract. For the purpose of the Contract, "**FOB**", "**C&F**", "**CIF**", "**FOR Destination**", "**Free delivery at site**" and other trade terms used to describe the obligations of the parties shall have the meanings as per the common trade practices.

10. Insurance

- a. The goods supplied under the Contract shall be fully insured in Indian Rupees against loss or damage incidental to manufacture or acquisition, transportation, storage at site, delivery, installation, testing commissioning and up to handing over of the plant and equipment in the manner specified in the Special Conditions of Contract.
- b. Where the Purchaser requires delivery of the Goods on free delivery at site basis; the Bidder/Supplier shall arrange and pay for marine insurance naming the Purchaser as the beneficiary.
- c. The Bidder/Supplier shall provide a copy of the insurance policy along with invoice to the Purchaser who will make arrangements to extend the validity of the policy, if necessary.
- d. The Bidder/Supplier shall initiate and pursue claim till settlement and promptly make arrangements for repair and/or replacement of any damaged item/s irrespective of settlement of claim by the underwriters.

11. Transportation

- a. The Bidder/Supplier is required under the Contract to deliver the Goods FOR destination, specified in the Schedule of Requirement. Transport of the Goods, up to the destination shall be arranged and paid for by the Bidder/Supplier and the cost thereof shall be included in the Contract Price.
- b. Where the Bidder/Supplier is required to effect delivery under any other terms, for example, by post or to another address in the source country, the Bidder/Supplier shall be required to meet all transport and storage expenses until delivery.
- c. In all the above cases, transportation of the Goods after delivery shall be the responsibility of the Purchaser.

12. Incidental Services



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- a. As specified in the Special Conditions of Contract, the Bidder/Supplier shall be required to provide any or all of the following services:
 - Performance or supervision of on-site assembly and/ or start-up of the supplied Goods;
 - Furnishing of tools required for assembly and/or maintenance of the supplied goods
 - Furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied Goods; and manuals covering the operation and maintenance of automation software and control systems.
 - Performance or supervision or maintenance and/or repair of the supplied Goods, for a period of time agreed by the parties, provided that this service shall not relieve the Bidder/Supplier of any warranty obligations under this Contract and
 - Conduct of training of the Purchaser's personnel, at the Bidder/Supplier's plant and/or on-site, in assembly, start-up operation, maintenance, and/or repair of the supplied Goods.

13. Spare Parts

- a. As specified in the Special Conditions of contract, the Bidder/Supplier may be required to provide any or all of the following materials and notifications pertaining to spare parts manufactured or distributed by the Bidder/Supplier:
 - Such spare parts as the Purchaser may decide to purchase from the Bidder/Supplier, provided that this decision shall not relieve the Bidder/Supplier of any warranty obligations under the Contract.
 - In the event of termination of production of the spare parts:
 - Advance notification to the Purchaser of the pending termination, in sufficient time to permit the Purchaser to procure its needed requirements.
 - Following such termination, furnishing at no cost to the Purchaser, the soft-copies, the blueprints, drawings, and specifications of the spare parts, if and when requested.

14. Warranty/Guarantee

- a. The Bidder/Supplier warrants that the Goods and equipment supplied, installed, and commissioned under the Contract are new, unused, of the most recent or current models and incorporate all recent improvements in design and materials unless provided otherwise in the Contract. The Bidder/Supplier further warrants that the Goods supplied under this Contract shall have no defect arising from design, materials, or workmanship (except in so far as the design or material is required by the Purchaser's Specifications) or from any act or omission of the Bidder/Supplier, that may develop under normal use of the supplied Goods in the conditions obtaining in the country of final destination. The Bidder/Supplier also guarantees that the Goods supplied shall perform satisfactorily as per the designed/rated/installed capacity as provided for in the Contract. The warranty will not cover normal wear and tear of consumables and minor spares.
- b. This warranty/guarantee shall remain valid for not less than 12 months after the commissioning of the plant, or any portion thereof as the case may be, have been delivered and commissioned.



- c. The Purchaser shall promptly notify the Bidder/Supplier in writing of any claims arising under this warranty.
- d. Upon receipt of such notice, the Bidder/Supplier shall, with all reasonable speed, repair or replace the defective Goods or parts thereof, without costs to the Purchaser including cost of inland delivery of the repaired or replaced Goods or parts from the port of entry to the final destination.
- e. If the Bidder/Supplier, having been notified, fails to remedy the defect(s) within a reasonable period, the Purchaser may proceed to take such **remedial action** as may be necessary, at the **Bidder/Supplier's risk and expense** and without prejudice to any other rights which the Purchaser may have against the Bidder/Supplier under the Contract.
- f. This warranty/ guarantee shall not cover any damage/s resulting from normal wear and tear or improper handling by the Purchaser or his authorized representatives.
- g. The Bidder/Supplier at his own cost shall rectify any defect arising out of faulty installation or use of substandard material or workmanship.

15. Payment-

- a. The method and conditions of payment to be made to the Bidder/Supplier under the Contract shall be specified in the Special Conditions of Contract.
- b. The Bidder/Supplier's request(s) for payment shall be made to the Purchaser in writing, accompanied by an invoice describing, as appropriate, the Goods delivered and Services performed, and by shipping documents, submitted pursuant to Clause 9, and fulfilments of other obligations stipulated in the Contract.

16. Price

- a. Revision of price would not be accepted. If any unavoidable reasons/circumstances, it can be discussed mutually with Management.

17. Change Orders

- a. **The Purchaser may, at any time, by a written order given to the Bidder/Supplier make changes within the general scope of the Contract in any one or more of the following:**
 - Drawings, designs or specifications, where Goods to be furnished under the Contract are to be specifically manufactured for the Purchaser
 - The method of shipment or packing
 - The place of delivery or
 - The Services to be provided by the Bidder/Supplier.
- b. If any such change causes an increase or decrease in the cost of, or the time required for, the Bidder/Supplier's performance of any part of the work under the Contract, whether changed or not changed by the order, an equitable adjustment shall be made in the Contract Price or delivery schedule, or both, and the Contract shall accordingly be amended. Any claims by the Bidder/Supplier for adjustment under this clause must be asserted within thirty (30) days from the date of the Bidder/Supplier's receipt of the Purchaser's change order.

18. Contract Amendment

- a. No variation in or modification of the terms of the Contract shall be made except by written amendment signed by the parties.

19. Assignment



19.1 The Bidder/Supplier shall not assign, in whole or in part, its obligations to perform under the Contract, except with the Purchaser's prior written consent.

20. Sub-contracts

20.1 The Bidder/Supplier shall notify the Purchaser in writing of all sub-contracts awarded under the Contract if not already specified in his bid. Such notification, in his original bid or later, shall not relieve the Bidder/Supplier from any liability or obligation under the Contract.

20.2 Sub-contracts must comply with the provisions of **Clause 3**.

21. Delays in the Bidder/Supplier's Performance

21.1 Delivery of the Goods and performance of Services shall be made by the Bidder/Supplier in accordance with the time schedule specified by the Purchaser in its Schedule of Requirements.

21.2 An unexcused delay by the Bidder/Supplier in the performance of its delivery obligations shall render the Bidder/Supplier liable to any or all the following sanctions:

- Forfeiture of its bid security,
- Imposition of liquidated damages, and/or
- Termination of the Contract for default

21.3 If at any time during performance of the Contract, the Bidder/Supplier, or its subcontractor(s) should encounter conditions impeding timely delivery of the Goods and performance of Services, the Bidder/Supplier shall promptly notify the Purchaser in writing of the fact of the delay, its likely duration, and its cause(s). As soon as practicable after receipt of the Bidder/Supplier's notice, the Purchaser shall evaluate the situation and may at its discretion extend the Bidder/Supplier's time for performance, in which case the extension shall be ratified by the parties by amendment of the Contract.

22. Liquidated Damages

22.1 Subject to **Clause 24**, if the Bidder/Supplier fails to deliver any or all of the Goods or perform the Services within the time period(s) specified in the Contract, the Purchaser shall, without prejudice to its other remedies under the Contract, deduct from the Contract Price, as liquidated damages as under:

a. For the Supply Component:

A sum equivalent to 0.5% of the delivered price of the delayed goods (As per the price break up furnished by the supplier and accepted by the Purchaser, which the supplier fails to supply within the time period specified in the contract for each week of delay.

b. For the Erection and Commissioning Component:

A sum equivalent to 0.5% of the un-executed portion of each week of delay or part thereof beyond the time specified in the contract for the successful completion of the plant. The total amount so deducted as per above, shall not exceed 5% of the Contract value. Once the maximum is reached, the Purchaser may consider termination of the Contract.

22.2 Any incremental taxes and levies on account of delay in performance of the Contract by the Bidder/Supplier shall be to the Bidder/Supplier's account.



23. Termination for Default

23.1 Suppliers default:

23.2 If the supplier shall assign the Contract, without the consent in writing of that Purchaser first obtained, or if in the opinion of the Purchaser, the Supplier:

- a. Has abandoned the Contract, or
- b. Without reasonable excuse has failed to commence the Works or has Suspended the progress of the works for twenty-eight days after receiving from the purchaser written notice to proceed, or
- c. Despite previous warnings by the Purchaser in writing, is not executing the works in accordance with the Contract, or neglecting to carry out his obligations under the contract so as seriously to affect the carrying out of the Works.

Then the Purchaser may, after giving fourteen days' notice in writing to the Supplier, enter upon the Site and expel the Supplier there from without thereby avoiding the contract, or releasing the Supplier from any of his obligations or liabilities under the contract, or affecting the rights and powers conferred by the Contract on the Purchaser and may himself complete the works or may employ any other Supplier to complete the Works without prejudice to any other remedy of the Purchaser. The Purchaser or such other Supplier shall have free use for such completion of so much of the Supplier's Equipment as may be on the Site in connection with the works without being responsible to the Supplier for fair wear and tear thereof and to the inclusion of any right of the Supplier over the same.

23.2.1 The Purchaser shall, as soon as may be practicable after any such entry and expulsion by the Purchaser, fix and determine by or after reference to the parties, or after such investigation or enquiries as he may think fit to make or institute, and shall certify what amount, if any, had at the time of such entry and expulsion been reasonably earned by or would reasonably accrue to the Supplier in respect of work then actually done by him under the Contract and the value of any unused or partially used materials on the Site.

23.2.2 If the Purchaser shall enter and expel the Supplier under this Clause, he shall not be liable to pay to the Supplier any money on account of the Contract until the costs of execution and all other expenses incurred by the Purchaser have been ascertained and the amount thereof certified. The Supplier shall then be entitled to receive only such sum or sums, if any, as the Purchaser may certify would have been payable to him upon due completion by him after deducting the said amount. If such amount shall exceed the sum which would have been payable to the Supplier on due completion by him, then the Supplier shall, upon demand, pay to the Purchaser the amount of such excess and it shall be deemed a debt due by the Supplier to the Purchaser and shall be recoverable accordingly.

23.2.3 If the Purchaser pursuant to this Clause takes the Works or part thereof out of the Supplier's hands the Supplier's Liability under Clause for delay in completion shall immediately cease, without prejudice to any such liability that may at that time already be recoverable from the Supplier by the Purchaser.



23.2.4 Consequent to such termination of Contract, the Purchaser shall also be entitled to recover the advance paid, if any, to the Supplier along with interest 10% per annum compounded quarterly on the last day of March, June, September and December on the advance paid for the entire period for which the advance was retained by the Supplier.

23.3 Default of the Purchaser

23.3.1 In the event of the Purchaser:

- a. Failing to pay to the Supplier the amount due within 60 days after the shall have become due under the terms of the Contract subject to any deduction that the Purchaser entitled to make under the Contract, or
- b. Becoming bankrupt or (being a company) going into liquidation other than for the purpose of a scheme of reconstruction or amalgamation, or
- c. Being unable to continue to meet his contractual obligations for unforeseen reasons due to economic dislocation

The supplier shall be entitled without prejudice to any other rights or remedies (and in respect of paragraph (a) above as alternative to the provisions of clause 16 for payment to terminate his employment under the contract by giving 30 days prior notice in writing to the purchaser.

23.3.2 Upon the giving of such notice the Supplier shall with all reasonable dispatch remove from the Site all suppliers' equipment brought by him thereon.

23.3.3 In the event of such termination the Purchaser shall be under the same obligations notice in writing to the Purchaser. to the Supplier in regard to payment as if the Contract had been terminated hereof but in additions payment spec' therein, the Purchaser shall pay to the Supplier the amount of any reasonable or damage to the Supplier arising out of or in connection with or by consequence such termination.

23.3.4 Nothing in this clause contained shall prejudice the right of the Supplier to exercise either in lieu of or in addition to the rights and remedies specified in this Clause, other rights or remedies to which the Supplier may be entitled.

24. Force Majeure

24.1 Notwithstanding the provisions of Clauses 21, 22 and 23, the Bidder/Supplier shall not be liable for forfeiture of its performance security, liquidated damages or termination for default, if and to the extent that, its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

24.2 For purposes of this clause, "**Force Majeure**" means an event beyond the control of the Bidder/Supplier and not involving the Bidder/Supplier's fault or negligence and not foreseeable. Such events may include, but are not restricted to, acts of the Purchaser either in its sovereign or contractual capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.

24.3 If a Force Majeure situation arises, the Bidder/Supplier shall promptly notify the Purchaser in writing of such condition and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Bidder/Supplier shall continue to perform its obligations under



the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

25. Termination for Insolvency

25.1 The Purchaser may at any time terminate the Contract by giving written notice to the Bidder/Supplier, without compensation to the Bidder/Supplier, if:

- The Bidder/Supplier becomes bankrupt or otherwise insolvent,
- The Bidder/Supplier being a Company is wound up voluntarily by the order of a Court receiver, liquidator or Manager appointed on behalf of the debenture holders or circumstances shall have arisen which entitle the court or debenture holders to appoint a receiver, liquidator, or a Manager, provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the Purchaser.

26. Termination for Convenience

26.1 The Purchaser, may by written notice sent to the Bidder/Supplier, terminate the Contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination be for the Purchaser's convenience, the extent to which performance of work under the Contract is terminated, and the date upon which such termination becomes effective.

26.2 The Purchaser shall purchase the Goods that are complete and ready for dispatch within 30 days after the Bidder/Supplier's receipt of notice of termination at the Contract terms and prices. For the remaining Goods, the Purchaser may decide:

- To have any portion completed and delivered at the Contract terms and prices and/or
- To cancel the remainder and pay to the Bidder/Supplier an agreed amount for partially completed Goods and for materials and parts previously procured by the Bidder/Supplier.

Both Purchaser and Supplier shall mutually settle all terminations as per clause 23, 24, 25 and 26.

27. Resolution of Disputes

27.1 The Purchaser and the Supplier shall make every effort to resolve amicably by direct informal negotiation any disagreement or dispute arising between them under or in connection with the Contract.

27.2 If, after thirty (30) days from the commencement of such informal negotiations, the Purchaser and the Supplier have been unable to resolve amicably a Contract dispute, either party may require that the dispute be referred for resolution to the formal mechanisms specified in the Special Conditions of Contract. These mechanisms may include, but are not restricted to, conciliation mediated by a third party, adjudication in an agreed national or international forum, and/or international arbitration. The mechanism shall be specified in the Special Conditions of Contract.

28. Governing Language

28.1 The Contract shall be written in the language of the bid, as specified by the Purchaser in the Instructions to Bidder/Suppliers. Subject to **Clause 29**, that language version of the Contract shall govern its interpretation. All correspondence and other documents pertaining to the Contract, which are exchanged by the parties, shall be written in that same language.



29. Applicable Law

29.1 The Contract shall be interpreted in accordance with the laws of the **Union of India**.

30. Notices

30.1 Any notice given by one party to the other pursuant to the Contract shall be sent in writing or by mail/hard copy and confirmed in writing to the address specified for that purpose in the Special Conditions of Contract.

30.2 A notice shall be effective when delivered or on the notice's effective date, whichever is later.

31. Taxes and Duties

31.1 The **Bidder/Supplier** shall be **entirely responsible** for all taxes, duties, license fees, etc. incurred until delivery of the contracted Goods to and taking over of the works by the Purchaser. The onus of paying all the statutory levies as per the applicable tariff heads and norms shall be on the Bidder/Supplier.

32. Right to use defective equipment

32.1 If after delivery, acceptance, and installation and within the guarantee and warranty period, the operation or use of the equipment proves to be unsatisfactory, the Purchaser shall have the right to continue to operate or use such equipment until rectification of defects, errors or omissions by repair or by partial or complete replacement is made without interfering with the Purchasers' operation.

33. Income Tax and Other Taxes

33.1 The Bidder/Supplier shall be liable to pay all corporate taxes, income tax and other taxes that shall be levied according to the laws and regulations applicable from time to time and the price bid by the Bidder/Supplier shall include all such taxes. Wherever the laws and regulations require deduction of such taxes at the source of payment, the Purchaser shall effect such deductions from the payment due to the Bidder/Supplier. The remittance of amounts so deducted and issuance of certificate for such deductions shall be made by the Purchaser as per the laws and regulations in force. Nothing in the Contract shall relieve the Bidder/Supplier from his responsibility to pay any tax that may be levied on income and profits made by the Bidder/Supplier in respect of the Contract. The Bidder/Supplier's staff, personnel and labour will be liable to pay personal income taxes in respect of such of their salaries and wages as are chargeable under the laws and regulations for the time being in force, and the Bidder/Supplier shall perform such duties in regard to such deductions thereof as may be imposed on him by such laws and regulations. The Purchaser shall not, in any way, be responsible for such payments by the Bidder/Suppliers' staff.

34. Construction of the contract

35.1 Notwithstanding anything stated elsewhere in the Bidding Documents, the entire work could be awarded in more than one contract.

35.2 The award of more than one contract shall 'not in any way dilute the responsibility of supplier for the successful commissioning of the plant/equipment as per the Bid Specifications and all the contracts will contain cross-fall breach clause. Any delay in one contract shall be construed as delay in completion of all the contracts and the liquidated damages shall be imposed accordingly.

35. Jurisdiction



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35.1 Settlement of any dispute out of the purchase order/ contract against this bid shall be subject to the courts at **Porbandar, Gujarat** only.

Section IV- Part I Special Conditions of Contract

SPECIAL CONDITION OF CONTRACT

TABLE OF CLAUSES:

Clause Number	Topic
1	Definitions
2	Equivalency of Standards and Codes
3	Inspection and tests
4	Delivery and Documents
5	Insurance
6	Incidental services
7	Spare Parts
8	Warranty
9	Payment
10	Notices



PART: I
SPECIAL CONDITIONS OF CONTRACT:

The following special conditions of contract shall supplement the General conditions of contract. Whenever there is a conflict, the provisions herein shall prevail over those in the General conditions of contract. The corresponding clause number of the General conditions is indicated in parentheses:

1. Definitions

1.1 The Supplier is (Name of Supplier).

2. Equivalency of Standards and codes

2.1 Wherever reference is made in the contract to the respective standards and codes in accordance with which goods and materials are to be furnished and work is to be performed or tested, the provisions of the latest current edition or revision of the relevant standards and codes in effect shall apply, unless otherwise expressly set forth in the contract. Where such standards and codes are national in character, or relate to a particular country or region, other authoritative standards and codes specified will be accepted subject to the purchaser's prior review and written approval. Difference between the standards specified described in writing by the supplier and submitted to the supplier desires the purchaser's approval. In the event the purchaser determines that such proposed deviations do not ensure equal or higher quality, the supplier shall comply with the standards set forth in the documents.

3. Inspection and tests

3.1 The inspection of the Goods shall be carried out to check whether the Goods are in conformity with the technical specifications attached to the purchase order form and shall be in line with the inspection/ test procedures laid down in the Schedule of Specifications and the Contract conditions.

3.2 Manufacturer must have suitable facilities at their works for carrying out various performance tests on the equipment. The bidder should clearly confirm that all the facilities exist for inspection and shall be made available to the inspecting Authority.

3.3 A load and functional tests as indicated in the specifications must be carried out at the manufacturer's works. Reliability of the equipment shall be demonstrated to the satisfaction of the appointed inspector or inspecting Agency.

3.4 Approved supplier's drawings shall not be departed from except as provided in the Bidding Document.

3.5 The Purchaser shall have the right at all reasonable times to inspect, at the Suppliers premises all Suppliers drawings of any part of the work.

3.6 The supplier shall provide, within the time stated in the contract or in the programme, drawings showing how the plant is to-be designed and any other information required for

- a. Preparing suitable foundations or other means of support.
- b. Providing suitable access on the site for the plant and any necessary equipment to the place where the plant is to be erected and
- c. Making necessary electrical connections from the panel board provided in the individual sections to the machines.



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3.7 Before the goods and equipment are taken over by the Purchaser, the Supplier shall supply operation and maintenance manuals together with drawings of the goods and equipment as built. These shall be in such details as will enable the Purchaser to operate, maintain, adjust and repair all parts of the works as stated in the specifications.

The manuals and drawings shall be in the ruling language (English) and in such form and numbers as stated in the contract.

Unless and otherwise agreed, the goods and equipment shall not be considered to be completed for the purposes of-taking over until such manuals and drawings have been supplied to the Purchaser.

3.8 The goods will be accepted after inspection by the Purchaser, his representative or any inspection agency appointed by Purchaser and the costs for such inspector/ Agency shall be borne by the Purchaser

4. Delivery and Documents

4.1 For imported goods

Upon shipment, the Supplier shall notify the purchaser and the Insurance Company by email or fax the full details of the shipment including purchase order number, description of goods, quantity, the vessel, the bill of lading number and date, port of loading, date of shipment, port of discharge, etc. The supplier shall mail the following documents to the purchaser, with a copy to the Insurance Company:

4.2 For imported goods: Original and three copies of:

- The Supplier's invoice showing purchase order no., Goods description, quantity, unit price, total amount;
- The negotiable, clean, on-board bill of lading marked freight prepaid and three copies of non-negotiable bill of lading;
- Packing list identifying contents of each package;
- Insurance certificate;
- Manufacturer's/Supplier's guarantee certificate;
- Inspection certificate, issued by the nominated inspection agency and the Supplier's factory inspection report; and
- Certificate for Country of origin.
- The Supplier's certificate certifying that the defects pointed out during inspection have been rectified.
- Custom clearance would be done by supplier for all imported items.

4.3 The Purchaser shall receive the above documents at least one week before arrival of the Goods at the port and, if not received, the Supplier will be responsible for any consequent expenses.



4.4 For Domestic Goods :

Original and seven copies of:

- ix) The supplier's invoice showing purchase order no., Goods' description, quantity, unit price, total amount;
- x) Delivery note/packing list/lorry receipt;
- xi) Manufacturer's/Supplier's guarantee certificate;
- xii) Inspection Certificate issued by the nominated inspection agency, and The Supplier's factory inspection report;
- xiii) Certificate of origin;
- xiv) Insurance policy;
- xv) Any other document evidencing payment of statutory levies.

Note: The nomenclature used for the item description in the invoice/s, packing list/s and delivery note/s etc. should be identical to that used in the purchase Order/contract. The dispatch particulars including name of transporter, LR no. and date should also be mentioned in the invoice/s.

5. Insurance

5.1 The marine/transit insurance shall cover an amount equal to 110% of the FOR, Porbandar value of the goods (including custom duty) from "warehouse to warehouse" on "All Risks" basis including War Risks and Strike clauses valid for a period not less than 6 months after the date of arrival of Goods at final destination.

5.2 The insurance charges shall be paid by Supplier towards all risks during storage, erection, testing, commissioning and up to acceptance of the plant.

6. Incidental services

6.1 The incidental services shall be provided as per the requirements outlined in the Schedule of Specifications and as covered under Clause 2.13. The cost shall be included in the contract price, if provided for in the scope of the Contract.

7. Spare Parts

7.1 A spare part packages is included in the scope of supply. Suppliers shall carry sufficient inventories to assure ex-stock supply of consumable spares such as gaskets, plugs, washers, belts, consumables, etc. other spare parts, and components shall be supplied as promptly as possible but in any case, within three months of placement of order.

7.2 Spare part package should be included for 1 years of the operation which includes Spares of instruments, critical items etc. except consumables.

8. Warranty/Guarantee

8.1 The warranty/guarantee shall be as per provision under Clause 2.15 of General Condition.



9. Payment

9.1 Payment for supply, installation and commissioning contracts must be strictly as below:

- 1) 30% advance of total contract value on submission of following:
 - (i) Acceptance of the order i.e.
 - a. Submission of the Duplicate copy of the order duly signed by the authorised signatory putting stamp of the Organisation.
 - b. Execution of the Contract Form.
 - (ii) Against a bank guarantee for equivalent amount valid for 365 days beyond the stipulated delivery (as per schedule of delivery/supply)/ completion period.
 - (iii) Submission of Plant layout, and P&I Diagram for process and services as per schedule of delivery/supply completion period.
- 2) Payment against Supply of equipments/material:
 - a. 40% progressive payment of supply value against safe receipt of goods at site.
- 3) Payment against Installation/erection and commissioning of equipments/material
 - a. 20 % payable on erection and commissioning value on progression of erection as per Joint Measurement Sheet within 60 days of submission of JMS.
- 4) 10% balance payment after 180 days of satisfactory commissioning of the plant.

Notes:

- a) Payment shall be made on complete supply of an item/group of items specified in the contract. No payment specified in the contract. No payment shall be made if supply of an item/group of items is incomplete.
- b) For all the payments to be made against bank guarantees, The Bank Guarantees should be obtained from Nationalized Bank.

10. Notices

10.1 For the purpose of all the notices, the following shall be the address of the purchaser and supplier.

Purchaser – Address as mentioned in Invitation for Bid.

Supplier (To be filled in at the time of contract signature.)



Section IV- Part II

Special Conditions of Contract for Erection & Commissioning

Contents

1. Sufficiency of Tender
2. Programme of Installation & Commissioning
3. Preparation of Drawings for Approval
4. Superintendence, Team, and Conduct
5. Purchaser's Instructions
6. Right of the Purchaser
7. Bidder/Supplier's Functions
8. Variations
9. Duties of the Bidder/Supplier Vis-a-Vis the Purchaser
10. Supply of Tools, Tackles and Materials
11. Protection of Plant
12. Unloading, Transportation and Inspection
13. Storage of Equipment
14. Approvals
15. Review & Co-Ordination of Erection Work
16. Extension of Time for Completion

Table 1 List of Drawings required Submission



PART II

SPECIAL CONDITIONS OF CONTRACT FOR ERECTION AND COMMISSIONING.

1.0 SUFFICIENCY OF TENDER

The Supplier/Bidder by bidding shall be deemed to have satisfied himself as to all the conditions and circumstances affecting the contract Price, as to the possibility of executing the works as shown and described in the contract, as to the general circumstances at the site of the works, as to the general labour position at site and to have determined the prices accordingly.

20 PROGRAMME OF INSTALLATION AND COMMISSIONING

2.1 As soon as practicable after the acceptance of the bid, the Bidder/Supplier shall submit to the Purchaser for his approval a comprehensive programme in the form of PERT network/ bar chart and any other form as may be required by the Purchaser showing the sequence of order in which the Bidder/Supplier proposes to carry out the works including the design, manufacture, delivery to site, erection, and commissioning thereof. After submission to and approval by the Purchaser of such programme, the Bidder/Supplier shall adhere to the sequence of order and method stated therein. The submission to and approval by the Purchaser of such programme shall not relieve the Bidder/Supplier of any of his duties or responsibilities under the Contract. The programme approved by the Purchaser shall form the basis of evaluating the pace of all works to be performed by the Bidder/Supplier. The Bidder/Supplier shall update the PERT Network every month, submit it to the Purchaser and shall inform the Purchaser the progress on all the activities falling on schedule for the next reporting date.

3.0 PREPARATION OF DRAWINGS FOR APPROVAL

The Bidder/Supplier should visit the site to acquaint himself in respect of existing site conditions and to know the details/information required for understanding the nature and type of civil construction works involved in the project, or, if the building will not be available at the time, when the information is required to generate the layout drawings, the purchaser has to provide drawings of the civil construction and to approve that the machine will fit in.

The Supplier shall submit to the Purchaser for approval:

- a. Within the time given in the specification or in the programme, such drawings, samples, patterns, and models as may be called for therein, and in numbers therein required.
- b. During the progress of works and within such reasonable times as the Purchaser may require such drawings of the general arrangement and details of the works as the Purchaser may require.
- c. Wherever necessary, the Supplier would be provided with a set of architectural drawings for the buildings where the erection works would be carried out and also the equipment details/drawings for various equipment to be handed over to the Supplier by the Purchaser.
- d. The specifications/conditions concerning the submission of drawings by the Supplier are detailed as under:
- e. Within four weeks from the date of receipt of the order and down payment, Supplier shall furnish a list of all necessary drawings as briefly described which the Supplier shall submit for approval, identifying each drawings by a serial number and descriptive title and expected date



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of submission. This list shall be revised and extended if necessary, during the progress of work depending on the nature of the contract also.

- f. The Purchaser shall signify his approval or disapproval of all drawings or such drawings that would affect progress of the contract as per the agreed programme.
- g. The purchaser shall issue, within four weeks of time in all circumstances, any drawing requested by the Bidder/Supplier and required to be provided by us. If the Bidder/Supplier suffers delay and/ or incurs costs due to delay on purchaser's part in this regard, then the Purchaser shall take such delay into account in determining any extension of time to which the Bidder/Supplier is entitled under Clause 15 hereof and the Bidder/Supplier shall be paid the amount of such cost as shall be reasonable.
- h. P&I Drawings, Plant Layout and GA Drawings submitted for approval shall be signed by responsible representative of Bidder/Supplier and shall be to any one of the following sizes in accordance with Indian Standards: "A0, A1, A2, A3 and A4".

Brief list of drawings:

- i. Equipment drawings for fabricated items.
 - ii. Equipment layout for production and service blocks.
 - iii. Flow diagrams for various services. In the technical documentation of the machine various electrical and pneumatic routing diagrams of machine units will be contained. This documentation will be delivered together with the machines.
 - iv. Service piping layouts in production and service blocks.
 - v. Stainless Steel piping layout in production blocks.
 - vi. Electrical cable, conduit/ cable tray layout.
 - vii. Other miscellaneous drawings as required for erection work.
- 3.1 Drawings showing fabrication details, dimensions, layouts and bill of materials submitted for approval shall be signed by responsible representative of Supplier and shall be to any one of the following sizes in accordance with Indian Suppliers Standards: A0, A1, A2, A3 and A4.
- 3.2 All drawings shall show the following particulars in the lower right hand corner in addition to Supplier's name:
- i. Name of the Purchaser
 - ii. Project Title
 - iii. Title of drawing
 - iv. Scale
 - v. Date of drawings
 - vi. Drawing number
 - vii. Space for drawing number
- 3.3 In addition to the information provided on drawings, each drawing shall carry a revision number date of revision and brief description of revision carried out. A brief description of the revisions carried out will be given in a separate writing. Whenever any revision is carried out, correspondingly revision number must be up-dated.
- 3.4 All the dimensions on drawings shall be in metric units.
- 3.5 Drawings (three sets) submitted by the Supplier will be checked, reviewed by the Purchaser and comments, if any, on the same will be conveyed to the Supplier. It is the responsibility of the Supplier to incorporate correctly all the comments conveyed by the Purchaser on the Supplier's drawings as far as technically possible. The drawings, which are approved with comments, are to be re-submitted to the Purchaser for purpose of records. Although Supplier



feels responsible for such drawings, they will not be checked/ reviewed by the Purchaser to verify whether all the comments have been incorporated by the Supplier. If the Supplier is unable to incorporate any comments in the revised drawings, Supplier shall clearly state in his forwarding letter such non-compliance along with the valid reasons.

- 3.6 Drawings prepared by the Supplier and approved by the Purchaser shall be considered as a part of the specifications. However, the examination of the drawings by the Purchaser shall not relieve the Supplier of his responsibility for engineering design, workmanship, and quality of materials, warranty obligations and satisfactory performance on installation covered under the contract.
- 3.7 If at any time before completion of the work, changes are made necessitating revision of approved drawings, the Supplier shall make such revisions and proceed in the same routine as for the original approval. and these drawings will be send after the erection to the Purchaser.
- 3.8 Date of submission: In the event, the drawings submitted for approval require many revisions amounting to redrawing of the same, then the date of submission of the revised drawings would be considered as the date of submission for approval.
- 3.9 The Supplier/Bidder shall furnish to the Purchaser before the works are taken over, operating and maintenance instructions together with drawings of the work as completed, in sufficient detail to enable the Purchaser to maintain, dismantle, reassemble, and adjust all relevant parts of the works. Unless otherwise agreed, the works shall not be considered to be completed for the purposes of taking over until such instructions and drawings have been supplied to the Purchaser.

4 SUPPLIER'S SUPERINTENDENCE (AND) DEPLOYMENT OF ERECTION TEAM AND CONDUCT OF PERSONNEL

- 4.1 The Supplier/Bidder shall employ one or more competent representatives, whose name or names shall have previously been communicated in writing to the Purchaser by the Supplier, to superintend the carrying out of the works on the site. The said representative or if more than one shall be employed, then one of such representatives shall be present on the site during normal working hours considering Italian employment and security laws.
- 4.2 The Supplier shall, execute the works with due care and diligence within the time for completion and employ Supplier's team comprising qualified and experienced engineers together with adequate skilled, semi-skilled and unskilled workmen in the site for carrying out the works. The Suppliers shall ensure adequate workforce to keep the required pace at all times as per the schedule of completion. Supplier shall also ensure availability of competent engineers during commissioning/start up/acceptance run, trial runs, operation of the plant/equipment till handing over of the plant. The Purchaser is responsible for providing sufficient skilled operators to attend to commissioning/start up/acceptance run.
- 4.3 The Bidder/Supplier shall furnish the details of qualifications and experience of their senior supervisors and engineers assigned to the work site including their experience in supervising erection and commissioning of plant and equipment of comparable capacity.
- 4.4 When the Bidder/Supplier or Suppliers representative is not present on any part of the work where it may be desired to give directions in the event of emergencies, orders may be given by the Purchaser and shall be received and observed by the supervisors or foremen who may have charge of the particular part of the work in reference to which orders are given. Any such instructions, directions or notices given by the Purchaser shall be deemed to have been given to the Supplier/Bidder.



- 4.5 The Supplier/Bidder shall furnish to the Purchaser a fortnightly labour force report showing by classifications the number of employees engaged in the work. The Supplier's employment records shall include any reasonable information as maybe required by the Purchaser. The Supplier should also display necessary Purchaser. The Supplier should also display necessary information as may be required by statutory regulations.
- 4.6 None of the Supplier's supervisors, engineers, or labourers may be withdrawn from the work without notice to the Purchaser and further no such withdrawals shall be made if in the opinion of the Purchaser, it will adversely affect the required pace of progress and/or the successful completion of the work.
- 4.7 The Purchaser shall be at liberty to object to any representative or person, skilled semi-skilled or unskilled worker employed by the Supplier in the execution of or otherwise about the works who shall, in the opinion of the Purchaser, misconduct himself or be incompetent, or negligent or unsuitable, and the Supplier shall remove the person so objected to, upon receipt of notice in writing from the Purchaser and shall provide in that place a competent representative at Supplier's own expense within a reasonable time.
- 4.8 In the execution of the works no persons other than the Supplier, sub-Supplier and their employees shall be allowed on the site except by the written permission of the Purchaser.

5 PURCHASER'S INSTRUCTIONS

The Purchaser may in his absolute discretion, issue from time to time drawings and/or instructions, directions, and clarifications, which are collectively referred to as Purchaser's instructions in regard to:

- Any additional drawing and clarifications to exhibit or illustrate details, which would be essentially for the erection of the machines.
- Variations or modifications of the design, quality or quantity of work or the additions or omissions or substitution of any work.
- Any discrepancy in the drawings or between the schedule of quantities and/or specifications.
- Removal from the site of any material brought there by the Supplier which are unacceptable to the Purchaser and the substitution of any other material thereof.
- Removal and/or re-execution of any work erected by the Supplier which are unacceptable to the Purchaser.
- Dismissal from the work of any persons employed there upon shall in the opinion of the Purchaser, misconduct himself, or be incompetent or negligent.
- Opening up for inspection of any work covered up.
- Amending and making good of any defects.

6 RIGHT OF THE PURCHASER

6.1 Right to direct works:

- The Purchaser shall have the right to question the manner in which all works under this contract shall be conducted. In so far as it may be necessary to secure the safe and proper progress and specified quality of the works. All work shall be done and all materials shall be furnished as specified in the scope of supply and in this contract to the satisfaction and approval of the Purchaser.
- Whenever in the opinion of the Purchaser, the Supplier has made marked departures from the schedule of completion or when circumstances or requirement force such a departure from the said schedule, the Purchaser, in order to ensure compliance with the schedule, shall in order



to ensure compliance with the schedule, shall direct the order, pace and method of conducting the work, which shall be adhered to by the Supplier.

- If in the judgment of the Purchaser, it becomes necessary at any time to accelerate the overall pace of the plant erection work, the Supplier, when directed by Purchaser, shall cease work at any particular point and transfer Supplier's men to such other point or points and execute such works, as may be directed by the Purchaser and at the discretion of the Purchaser.

6.2 Right to order modifications of methods and equipment

If at any time the Supplier's methods, materials or equipment appear to the Purchaser to be unsafe, inefficient, or inadequate for securing the safety of workers or the public, the quality of work or the rate of progress required, the Purchaser may direct the Supplier to ensure safety, and increase their efficiency and adequacy and the Supplier shall carry out everything, within his possibilities to promptly comply with such directives. If at any time the Supplier's working force and equipment are inadequate in the opinion of the Purchaser, for securing the necessary progress as stipulated, the Supplier shall if so directed, increase the working force and equipment to such an extent as to give reasonable assurance of compliance with the schedule of completion. The absence of such demands from the Purchaser shall not relieve the Supplier of Supplier's obligations to secure the quality, the safe conducting of the work and the rate of progress required by the contract. The Supplier alone shall be and remain liable and responsible for the safety, efficiency and adequacy of Supplier's methods, materials, working force and equipment, irrespective of whether or not the Supplier make any changes as a result of any order or orders received from the Purchaser.

6.3 Right to inspect the work

- The Purchaser's representative shall be given full assistance in the form of the necessary tools, instruments, equipment, and qualified operators to facilitate inspection.
- The Purchaser reserves the right to call for the original test certificates for all the materials used in the erection work.
- In the event the Purchaser's inspection reveals poor quality of work/materials, the Purchaser shall be at liberty to specify additional inspection procedures if required, to ascertain Supplier's compliance with the specifications of erection work.
- Even though inspection is carried out by the Purchaser or Purchaser's representatives, such inspection shall not, however, relieve the Supplier of any or all responsibilities as per the contract, nor prejudice any claim, right or privilege which the Purchaser may have because of the use of defective or unsatisfactory materials or bad workmanship.

7 BIDDER/SUPPLIER'S FUNCTIONS

- 7.1 The Bidder/Supplier's shall provide everything necessary (including lifting, handling and transport tools) for proper execution of the works, according to the drawings, schedule of quantities and specifications taken together whether the same may or may not be particularly shown or described therein, provided that the same can reasonably be inferred there from and if the Supplier finds any discrepancy therein, Supplier shall immediately refer the same to the Purchaser whose decision shall be final and binding on the Supplier.



7.2 The Bidder/Supplier shall proceed with the work to be performed under this contract in the best and worker like manner by engaging qualified and efficient workers and finish the work in strict conformance with the drawings and specifications and any changes/modifications thereof made by the Purchaser.

8 VARIATIONS

8.1 The Purchaser shall make any variation of the form, quality or quantity of the works, or any part thereof that may, in his opinion, be necessary and for that purpose, or if for any other reason it shall, in his opinion be desirable, he shall have power to order the Supplier to do and the Supplier shall do any of the following.

- Increase or decrease the quantity of any work included in the contract.
- Omit any such work
- Change the character or quality or kind of any such work Change the levels, lines position and dimensions of any part of the work. Layout and tower drawings are part of this contract. Changing anything concerning these drawings can only be carried out if technically feasible; the changes do not affect the installation schedule and the Purchaser takes over all costs for it.
- Execute additional work of any kind necessary for the completion of the works and no such variation shall in any way vitiate or invalidate the contract, but the value, if any, of all such variations shall be taken into account in ascertaining the amount of the contract price.

8.2 The Bidder/Supplier shall make no such variations shall be made by the Supplier without an order in writing of the Purchaser. Provided that no order in writing shall be required for increase or decrease in the quantity of any work where such increase or decrease is not the result of an order given under this clause, but is the result of the quantities exceeding or being less than those stated in the result of the quantities exceeding or being less than those stated in the contract/Bill of quantities. Provided also that if for any reason the Purchaser shall consider it desirable to give any such order verbally, the Supplier shall comply with such order and any confirmation in writing of such verbal order given by the Purchaser, whether before or after the caring out of the order, shall be deemed to be an order in writing within the meaning of this clause. Provided further that if the Supplier shall within seven days confirm in writing to the Purchaser and such confirmation shall not be contradicted in writing by the Purchaser within 14 days, it shall be deemed to be an order in writing by the Purchaser.

8.3 All extra or additional work done or work omitted by order of the Purchaser shall be valued at the rates and prices set out in the contract if in the opinion of the Purchaser, the same shall be applicable. If the contract does not contain any rates or prices applicable to the extra or additional work, then suitable rates or prices shall be agreed upon between the Purchaser and the Bidder/Supplier. Any Extra Work, carried out by the Bidder/Supplier would be at mutually agreed cost (Landed cost + 15% service charge).

8.4 Provide that if the nature of amount of any omission or addition relative to the nature or amount of the whole of the works or to any part thereof shall be such that, in the opinion of the Purchaser, the rate or price contained in the contract for any item of the works is, by reason of such omission or addition, rendered unreasonable or inapplicable, then a suitable rate or price shall be agreed upon between the Purchaser and the Supplier. In the event of disagreement, the Purchaser shall fix such other rate or price as shall, in his opinion, be reasonable and proper having regard to the circumstances.



- 8.5 Provided also that no increase or decrease mentioned above or variation of rate or price shall be made unless, as soon after the date of the order as is practicable and, in the case of extra or additional work, before the commencement of the work or as soon thereafter as is practicable, notice shall be given in writing.
- By the Supplier to the Purchaser of his intention to claim extra payment or a varied rate or price, or
 - By the Purchaser to the Supplier of his intention to vary a rate or price.
- 8.6 If, on certified completion of the whole of the works, it shall be found that a reduction or increase greater than 15 per cent of the sum named in the letter of acceptance results from the aggregate effect of all variation orders but not from any other cause, the amount of the contract price shall be adjusted by the Purchaser having regard to all material and relevant factors, including the Supplier's site and general overhead costs of the contract.
- 8.7 The Bidder/Supplier shall send to Purchaser's representative once in every month an account giving particulars, as full and detailed as possible, of all claims for any additional payment to which the Supplier may consider himself entitled and of all extra or additional work ordered by the Purchaser which the Supplier additional work ordered by the Purchaser which he has executed during the preceding month.
- 8.8 No final or interim claim for payment for any such work or expense will be considered which has not been included in such particulars. Provided always that the Purchaser shall be entitled to authorize payment to be made for any such work or expense, notwithstanding the Supplier's failure to comply with this condition, if the Supplier has, at the earliest practicable opportunity, notified the Purchaser in writing that he intends to make a claim for such work. All additional efforts and parts recommended by the Seller to the Purchaser or requested from Purchaser to the Seller will be given in writing in form of offers, which needs to be confirmed by the Purchaser in writing.
- 8.9 The work shall be carried out as approved by the Purchaser or his authorized representative/s from time to time keeping in view the overall schedule of completion of the project. The Supplier's job schedule must shall not disturb or interfere with Purchaser's or the other Supplier's schedules of day to day work. Purchaser's activities shall not interfere the supplier's work. This has to be coordinated by the Purchaser. The Purchaser will provide all reasonable assistance for carrying out the jobs.
- 8.10 Night work will be permitted only with prior approval of the Purchaser. The Purchaser may also direct the Supplier to operate extra shifts over and above normal day shift to ensure completion of contract as per schedule. Adequate lighting wherever required should be provided by the Purchaser Supplier at no extra cost but employment law has to be considered. The Supplier should employ qualified electricians and wiremen for these facilities. In case of Supplier's failure to provide these facilities and personnel, the Purchaser has the right to arrange such facilities and personnel and to charge the cost thereof to the Supplier.
- 8.11 In order to enable the supplier to arrange for insurance of all items received at the site including the items of supply covered under this contract, the Supplier shall furnish necessary details of all the equipment immediately on its receipt at site, to the Purchaser. Any default on the part of the Supplier due to which any item does not get covered under the insurance; the consequential losses shall be charged to the supplier. Supplier will arrange the insurance coverage of the delivered goods from warehouse to warehouse and during the installation & Commissioning period on site in addition.



- 8.12 The Purchaser shall not be liable for or in respect of any damages or compensation payable at law in respect or in consequence of any accident or injury to any workman or other person in the employment of the Purchaser, his agents, or servants. The Supplier shall indemnify and keep indemnified the Purchaser against all such damages and compensation, save and except as aforesaid and against all claims, proceedings, costs, charges and expenses whatsoever in respect thereof or in relation thereto.
- 8.13 The Bidder/Supplier shall ensure against such liability with an insurer approved by the Purchaser, which approval shall not be unreasonably withheld, and shall continue such insurance during the whole of the time that any persons are employed by him on the works shall, when required, produce to the Purchaser or Purchaser's representative such policy of insurance and the receipt for payment of the current premium. Provided always that, in respect of any persons employed by any sub-Supplier the Supplier's obligations to ensure as aforesaid under this sub-clause shall be satisfied if the sub-Supplier shall have insured against the liability in respect of such persons in such manner that the Purchaser is indemnified under the policy, but the Supplier shall require such sub-Supplier to produce to the Purchaser or Purchaser's representative, when required such policy of insurance and the receipt for the payment of the current premium.
- 8.14 Whenever proper execution of the work under the contract depends on the jobs carried out by some other Supplier, the Supplier should inspect all such erection and installation jobs and report to the Purchaser regarding any defects or discrepancies. The Supplier's failure to do so shall constitute as acceptance of the other Supplier's installation/jobs as fit and proper for reception of Supplier's works except those defects which may develop after execution. Supplier should also report any discrepancy between the executed work and the drawings. Any works/ supplies are carried out under the scope of Purchaser; the Purchaser shall inspect and certify compliance with the requirements given by Supplier for such works/ materials/supplies. The Supplier shall extend all necessary help/co-operation to other Suppliers working at the site in the interest of the work.
- 8.15 Bidder/Supplier shall carry out final adjustments of foundations, levelling and dressing of foundation surfaces, bedding and grouting of anchor bolts, bedplates etc. required for seating of equipment in proper position. The Bidder/Supplier shall be responsible for the reference lines and proper alignment of the equipment. However, all civil works like making cut-outs in walls, floors and ceilings for pipelines shall be done by the purchaser. Adjustment & levelling are to be carried out by the Bidder/Supplier at no extra cost. The Purchaser shall arrange the necessary refilling/repairs of these cut-outs and pockets. The Bidder/Supplier should arrange for laying the supports, cut-outs, grouting of bolts, etc. When the civil works are in progress, so as to avoid refilling/repair works. The Purchaser at Bidder/Supplier's costs shall make the damages occurring to civil and other works good. For fixing of piping/equipment supports on wall/beams/roof floor etc., preferably anchor bolts shall be used by the Bidder/Supplier. Drilling of holes for fixing anchor bolts & supply of anchor bolts is in the scope of Bidder/Supplier without any extra cost.
- 8.16 The Supplier shall keep a check on deliveries of the equipment covered in the scope of erection work and shall advise the Purchaser well in advance regarding possible hold-up in Supplier's work due to the likely delay in delivery of such equipment/components to enable him to take remedial actions.



9 DUTIES OF THE SUPPLIER VIS-À-VIS THE PURCHASER

- 9.1 The equipment and the items, if any, to be supplied by the Purchaser for erection, testing and commissioning shall be as listed in the contract.
- 9.2 Besides the utilities/services as specified in battery limits according to attachment form of the supplier, following assistance/facilities shall also be provided to the Supplier by the Purchaser for carrying out the installation work:
- Plant building ready for installation of equipment/items.
 - Necessary temporary water for carrying out the installation shall be supplied at only one point within the project site by the Purchaser @0.5% of total installation charges will be deducted from the erection & commissioning bill of the Supplier. All necessary distribution tapings from this point onwards shall be the Supplier's responsibility.
 - Necessary temporary power for carrying out the installation shall be arranged by the Supplier at Supplier's own cost. The Purchaser on written request by the Supplier will issue the necessary authorization letter.
- 9.3 If the power is provided by purchaser, the recovery @0.5% of total installation charges will be deducted from the erection & commissioning bill of the Supplier. However, the Supplier shall supply all the items such as energy meter, switchgear etc. required for getting temporary power.
- 9.4 The details of temporary water and power requirements shall be furnished one month in advance by the Supplier to enable the Purchaser to take timely arrangement.
- 9.5 If the Bidder/Supplier suffers delay and/or incurs costs from failure on the part of the purchaser to give possession of the civil works in accordance with the mutually agreed schedule, the purchaser shall determine:
- Any extension of time to which the Bidder/Supplier is entitled under **clause 21 of GCC** (General Conditions of Contract) and
 - The amount of such costs, which shall be added to the contract price, and shall notify the Bidder/Supplier accordingly.

10 SUPPLY OF TOOLS, TACKLES AND MATERIALS

The Bidder/Supplier shall, at his own expense, provide all the necessary equipment, tools and tackles, haulage power, consumables necessary for effective execution and completion of the works during erection and commissioning.

11 PROTECTION OF PLANT

- 11.1 The Purchaser shall not be responsible or held liable for any damage to person or property consequent upon the use, misuse or failure of any erection tools and equipment used by the Supplier or any of Supplier's sub-Suppliers even through such tools and equipment may be furnished, rented, or loaned to the Supplier or any of Supplier's sub-Suppliers. The acceptance and/or use of any such tools and equipment by the Supplier or Supplier's sub-Supplier shall be construed to mean that the Supplier accepts all responsibility for and agrees to indemnify and save the Purchaser from any and all claims for said damages resulting from the said use, misuse or failure of such tools and equipment's by the Supplier or Supplier's sub-Supplier shall be construed to mean that the Supplier accepts all responsibility for and agrees to



indemnify and save the Purchaser from any and all claims for said damages resulting from the said use, misuse or failure of such tools and equipment's.

- 11.2 The Supplier and Supplier's Sub-Supplier shall be responsible, during the works, for protection of work, which has been completed by other Suppliers. Necessary care must be taken to see that no damage to the same is caused by the Supplier's men during the course of execution of the work.
- 11.3 All other works complete or in progress as well as machinery and equipment that are liable to be damaged by the Supplier's work shall be protected by the Supplier and protection shall remain and be maintained until its removal is directed by the Purchaser.
- 11.4 The Supplier shall effectively protect from the effects of weather and from damage or defacement and shall cover appropriately, wherever required all the works for their complete protection.
- 11.5 The work shall be carried out by the Supplier without damage to any work and property adjacent to the area of Supplier's work to whomsoever it may belong and without interference with the operation of existing machines or equipment.
- 11.6 Adequate lighting, guarding and watching at and near all the storage handling, fabrication, pre-assembly, and erection sites for properly carrying out the work and for safety and security shall be provided by the supplier at supplier's cost. The Supplier should adequately light the work area during night time also. The Supplier should also engage adequate electricians/wireman, helper etc. to carry out and maintain these lighting facilities. If the Supplier fails in this regard, the Purchaser may provide lighting facilities as he may deem necessary and charge the cost thereof to the Supplier.
- 11.7 The Supplier shall take full responsibility for the care of the works or any section or portions thereof until the date stated and in taking over certificate issued in respect thereof and in case any damage or loss shall happen to any portion of the works not taken over as aforesaid, from any cause whatsoever, the same shall be made good by and at the sole cost of the Supplier and to the satisfaction of the Purchase. The Supplier shall also be liable for any loss of or damage to the works occasioned by the Supplier or the Supplier's sub-Supplier in the course of any operations carried out by the Supplier or by the Supplier's Sub-Suppliers for the purpose of completing any outstanding work or complying with the Supplier's obligations.

12 UNLOADING, TRANSPORTATION AND INSPECTION

- 12.1 The Supplier shall be present during Purchaser's unloading required to unload all the materials/equipment from the carriers, those received at site after Supplier's team arrives at site. The Supplier Purchaser shall plan in advance, based on the information received from the Supplier Purchaser, Purchaser's Supplier's requirement of to unload the material/equipment promptly and efficiently. The Purchser Supplier shall ensure that adequate and all measures necessary to avoid any damage whatsoever to the equipment at the time of unloading are taken.
- 12.2 Any demurrage/detention charge incurred due to the delay in unloading the material/equipment and releasing the carries shall be charge to the Supplier's account.
- 12.3 The Supplier shall be responsible for the reception on site of all plant and Supplier's equipment delivered for the purpose of the contract.
- 12.4 The Supplier shall safely transport/shift the unloaded materials/ equipment by the Supplier to the storage area.
- 12.5 All the materials/equipment received by the Purchaser prior to arrival of the Supplier at site shall be handed over to the Supplier and there upon the Supplier shall inspect the same and



furnish the receipt to the Purchase. The manner in which the inspection shall be carried out is enumerated below:

- 12.6 The materials/equipment would be carefully unpacked by opening the wooden cases/other modes of packing as the case may be.
- 12.7 Detailed inventory of various items would be prepared clearly listing out the shortages, breakages/damages after checking the contents with respect to the Supplier's packing list, the Purchaser's purchase order and approved equipment drawings. The Supplier shall also check every equipment for any shortage/shortcoming that may eventually create difficulty at the time of installation or commissioning.
- 12.8 All the information and observations by the Supplier shall be furnished in the form of 'INSPECTION REPORT' to the Purchaser with specific mention/suggestions which in the opinion of the Supplier should be given due consideration and immediate necessary actions of the Supplier.
- 12.9 The protection safety and security of the materials so taken over from the Purchase shall be the responsibility of the Supplier, until they are handed over to the Purchaser after erection, commissioning and testing as per the terms of the Contract.

13 STORAGE OF EQUIPMENT

- 13.1 The Supplier shall be responsible for the proper storage and maintenance of all materials/equipment under Supplier's custody. Supplier shall take all required steps to carry out frequent inspection of equipment/materials stored as well as erected equipment until the same are taken over by the Purchaser. The following procedure shall apply for the same.
- 13.2 The Supplier's inspector shall check stored and installed equipment/materials to observe signs of corrosion, damage to protective coating to parts, open ends in pipes, vessels and equipment, insulation resistance of electrical equipment etc. The Supplier shall immediately arrange a coat of protective painting whenever required. A record of all observations made on equipment, defects noticed shall be promptly communicated to the Purchaser and Purchaser's advice taken regarding the repairs/recitations. The Supplier shall there upon carry out such repairs/rectification at Supplier's own cost. In case the Supplier is not competent to carry out such repairs/rectifications, the Purchaser reserves the right to get this done by other competent agencies at the Supplier's responsibility and risk and the entire cost for the same shall be recovered from the Supplier's bills.
- 13.3 The Supplier's inspector shall also inspect and provide lubrication to the assembled equipment. The shafts of such equipment shall be periodically rotated to prevent rusting as well as to check freeness of the same.
- 13.4 The Inspector shall check for any signs of moisture or rusting in any equipment.
- 13.5 If the commuting of equipment is delayed after installation of the equipment, the Supplier shall carry out all protective measures suggested by the Purchaser during such period.
- 13.6 Adequate security measures shall be taken by the Supplier to prevent theft and loss of materials handed over to the Supplier by the Purchaser. The Supplier shall carry out periodical inventory checks of the materials received, stored, and installed by the Supplier and any loss noticed shall be immediately reported to the Purchaser. A proper record of these inventories shall be maintained by the Supplier. The Supplier should not sell, assign, mortgage, hypothecate or remove equipment or materials which has been installed or which may be necessary for completion of the work without the written consent of the Purchaser.



- 13.7 A suitable grease recommended for protection of surface against rusting (refined from petroleum oil with lanolin minimum (70 °C) and water in traces) shall be applied over all equipment as required once in every six months.
- 13.8 All equipment shall be stored inside a closed shed whether they are of indoor or outdoor design. The space heaters where provided into the electrical equipment shall be kept connected with power supply irrespective of their type of storage. Where space heaters are not provided adequate heating with bulb is recommended. For transformers heating of oil shall be done by giving 440 V supply and short circuiting the LT terminals. Frequent checks on insulation resistance is essential for all electrical measure readings shall be maintained equipment wise. Such records shall be presented to the Purchaser whenever demanded.
- 13.9 All the necessary items/goods required for protection as described above shall be arranged by the Supplier and such cost shall be included in the Contract price.

14 APPROVALS

- The Supplier shall obtain the necessary approvals of the Factory Inspector, Boiler Inspector, Electrical Inspector, Weights & Measures Inspector, Explosive Inspector, and any other state local authorities as may be required and the cost of obtaining such approvals shall be included in the contract price.
- Wherever necessary or required the Supplier shall furnish the necessary test and/or inspection certificate etc. from the appropriate authorities as per IBR, IER and other statutory regulations and the cost for obtaining these certificates shall be included in the contract price.

15 REVIEW AND CO-ORDINATION OF ERECTION WORK

The Bidder/Supplier shall depute **senior and competent personnel** to attend the site coordination meetings that would generally be held at **the site at regular interval**. The Bidder/Supplier shall take necessary action to implement the decisions arrived at such meetings and shall also update the erection schedule.

16 EXTENSION OF TIME FOR COMPLETION

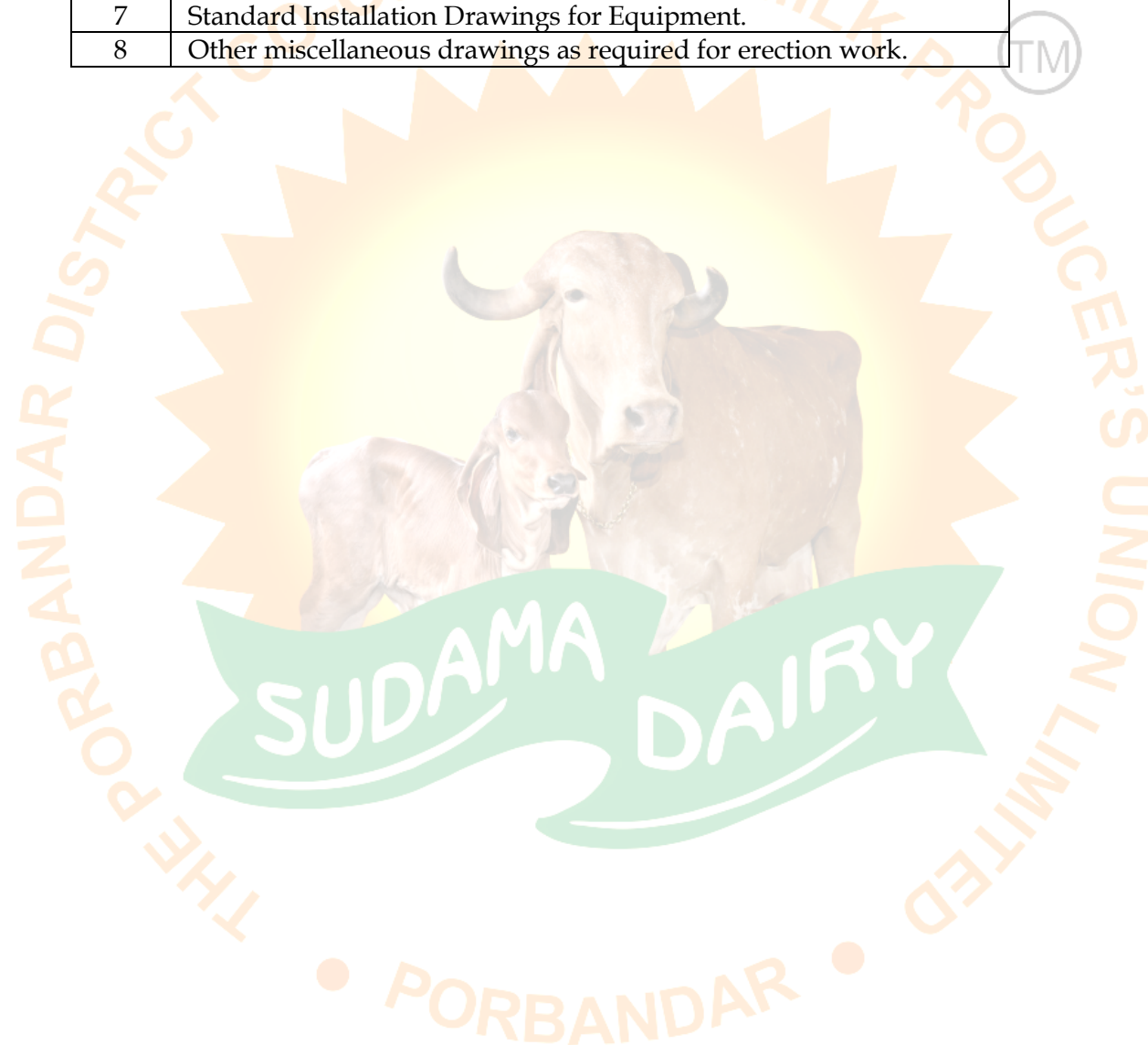
Should the amount of **extra or additional work** of any kind or any cause of delay referred to in these conditions, or exceptional adverse climatic conditions, or other special circumstances of any kind whatsoever which may occur, other than through a default of the Bidder/Supplier, be such as fairly to entitle the Bidder/Supplier to an extension of time for the completion of the works, the Purchaser shall determine the amount of such extension and shall notify the Bidder/Supplier accordingly. Provided that the Purchaser is not bound to take into account any extra or additional work or other special circumstances unless the Bidder/Supplier has within **twenty eight days** after such work has been commenced, or such circumstances have arisen, or as soon thereafter as is practicable, submitted to the Purchaser full and detailed particulars of any **extension of time** to which he may consider himself entitled in order that such submission may be investigated at the time.



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Table 1: List of Drawings required Submission

SN	Drawings
1	Equipment drawings for fabricated items.
2	Equipment layout for production and service blocks.
3	Flow diagrams for process and various services.
4	Service piping layouts in production and service blocks.
5	Piping layout, wherever required.
6	Electrical cable, conduit/cable tray layout.
7	Standard Installation Drawings for Equipment.
8	Other miscellaneous drawings as required for erection work.





Section IV-Part III B Special Conditions of Contract for Mechanical Works

Contents

1. Scope
2. General installation
3. Service piping installation
4. Special instructions and specifications
5. Inter connections of service and electricals with equipment
6. Testing, commissioning and start-up
7. Painting
8. Training of personnel
9. Statutory and Government Liasoning work

Code of practice for painting of service pipe lines, equipment, and structural work





Special Condition of Contract for Mechanical work:

1. Scope

The installation work would comprise:

- General installation i.e. positioning and installing all the processing, miscellaneous and service equipment as per approved layout drawings and as per the contract.
- Supply and installation of structural platforms and tables.
- Supply and installation of all service and product piping including ancillary items.
- Interconnections of services and electrical with equipment.
- Guide line for expansion work. Clean up of work site.
- Supply of all cleaning chemicals (except CIP chemicals) and lubricants. Testing, commissioning and start-up.
- Painting including supply of paints as approved by the Purchaser.
- Training of personnel.
- Detailed specifications are given in the subsequent clauses.

2. GENERAL INSTALLATION

2.1 Positioning of Equipment

The work involves preparation of access for moving of the plant and equipment including their fittings from the work site godown or from the place within the site where they have been unloaded, to the place of erection, decorating and placing on the –foundation wherever required. All the civil foundations as per the manufacturer/supplier's drawings shall be arranged by the Purchaser. The Supplier shall place the equipment and carry out final adjustment of the foundations including alignment and dressing of foundation surface, embedding and grouting of anchor bolts and bedplates. The Supplier shall be responsible for obtaining correct reference lines for purpose of fixing the alignment of various equipment from master benchmarks provided by the Purchaser.

Tolerances shall be as specified in equipment manufacturers drawings or as stipulated by the Purchaser's Engineer. No equipment shall be permanently bolted down to foundations or structure until the alignment has been checked by the Supplier and witnessed by the Purchaser. The Supplier shall carry out minor alterations in the anchor bolts, pockets etc., at no extra cost and set the equipment properly as per approved layout, drawings, and manufacturer's instructions. The Supplier shall supply all the necessary foundation/ anchor bolts and bedplates if required without extra cost.

The Supplier shall supply, fix and maintain, at his own cost, during the erection work, all the necessary centering, scaffolding, staging required not only for proper execution and protection of the said work but also for protection of the surrounding plant and equipment. The Supplier shall take out and remove any or all such centering, scaffolding, staging planking etc., as occasion shall require or when ordered to do so and shall fully reinstate and make good all things disturbed during execution of the work, to the satisfaction of the Purchaser. The Supplier shall be paid no additional amount for the above.

Structural platforms shall be required to provide access for various equipments. Pipe support bridges/gantry shall be required for supporting the pipes from the ground, including road crossings outside the buildings. Tables shall be required for handling milk/milk products. These platforms, bridges/ gantry and tables shall be fabricated keeping stability and other functional as well as aesthetic requirements into consideration as approved by the Purchaser. The payment shall be made on the basis of the actual weight executed and the unit rates agreed upon or as per provisions made in the contract for such items.



The purchaser shall arrange for any civil works required for the above works based on the drawings and load details provided by the bidder. Necessary templates and other accessories required by the civil contractor shall be provided by the bidder.

3. SERVICE PIPING INSTALLATION

3.1 General Guidelines

All piping systems shall comply with the latest editions of the following regulations wherever applicable.

3.1.1 All applicable Indian Standards.

3.1.2 All applicable State Government/ Central Government laws / acts.

3.1.3 The Supplier has to prepare all erection drawings of the proposed plant including equipment positions and service-piping positions (isometric), spacing between pipes, all other relevant details and submit these drawings to AMUL DAIRY for approval.

3.2 Scope of Supply

The Supplier shall supply all piping materials like pipes, fittings, flanges measuring instruments and all other items as shown in the flow diagram/specifications and schedule of quantities. All the pipes & fittings and insulation material etc. should be of class and make as approved by the Purchaser. Prior approval of the Purchaser must be obtained by the Supplier for the class and make of all materials The Supplier should furnish the details of makes selected by him in the proforma given in Annexure I

3.3 Scope of Piping Erection

This to be performed by the Supplier as outlined below

3.3.1 The scope of erection for piping includes all system covered in the flow diagrams and specifications

3.3.2 The Suppliers work commences/terminates at the pipe connections with valves flanges as specified in flow diagrams/battery limits

3.3.3 The Supplier shall also install necessary piping and any specialties furnished with or for equipment such as relief valves built in pass and other items of this type

3.3.4 The Supplier shall install primary elements for flow measurements control valves and on line metering equipment

3.3.5 The Supplier shall perform necessary internal machining of pipes for installing orifices, flow nozzles control valves, etc.

3.3.6 The Supplier shall install all pipes valves and specialties being procured from other sources.

3.4 Testing of Piping

3.4.1 All piping shall be internally cleaned and flushed by the Supplier after erection in a manner suited to the service and as directed by the Purchaser.

3.4.2 For hydrostatic testing and water flushing, the Supplier shall furnish necessary pumps, equipment, instruments, and piping etc.

3.5 Other Guidelines



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- a) Colour code shall be used to identify pipe material. The Supplier shall be able to identify on request all random piping prior to held fabrication.
- b) The Supplier shall be responsible for the quality of welding done by them and shall conduct tests to determine the suitability of the welding procedure by him.
- c) All piping supports, guides, anchors, hangers, rollers with structural framework shall be supplied and erected by the Supplier. Only anchor fasteners of adequate size shall be provided for anchoring supports from RCC structures and Hilti Gun shall be used for fastening the anchors. The kinds of pipe support like CI clamps, PUF/wooden saddles, roller supports and support framework shall be as per the design approved by the Purchaser prior to taking up the work.
- d) All piping shall be suspended, guided and anchored with due regard to general requirements and to avoid interference with other pipes, hangers, electrical conduits and their supports, structural members, and equipment and to accommodate insulation and conform to buildings structural limitations. It is the responsibility to the piping Supplier to avoid all interference while locating hangers and supports.
- e) Anchors and/or guides for pipelines or for other purposes shall be furnished, when specified, for holding the pipeline in position for alignment. Hangers shall be designed fabricated and assembled in such a manner that they cannot become disengaged by any movement of the support pipes.
- f) All piping shall be wire brushed and purged with air blast to remove all rust, mill scale from inner surface. The method of cleaning shall be such that no material is left on the inner or on outer surfaces which will affect the serviceability of the pipes A thin coat of any lubricating oil shall be applied on entire inner surface of steel pipes (black) to prevent rusting.
- g) Effective precautions such as capping and sealing shall be taken to protect all pipe ends against ingress of dirt and damage during transit or storage. The outside of the steel pipes (black) shall be painted with two coats of red oxide paint or as directed by the Purchaser.
- h) All pipes in the corridor shall be supported from the sidewall.
- i) Vertical risers shall be parallel to walls and column lines and shall be straight and in plumb. Risers passing from floor to floor shall be supported at each floor slab by clamps or collars attached to pipe and with a 15mm thick rubber pad or any resilient material. Where pipes pass through the terrace floor, suitable flashing shall be provided to prevent water leakage. Risers shall have a suitable clean out at a lower point and air vent at the highest point.
- k) Pipe sleeves at least 3mm thick, 50mm/100mm larger in diameter than the pipes shall be provided wherever pipe passes through walls and slabs. Annular space shall be filled with fibre glass and finished with retainer rings. No extra payment shall be made on account of providing the sleeves.
- l) All piping works shall be carried out in a worker like manner, causing minimum disturbance to the services, buildings, roads and structures. The entire piping work shall be organized, in consultation with other agencies work, so that laying of pipe support, pipes and pressure testing for each area shall be carried out in one stretch.
- m) Cut-outs details in the floors and slabs for installing various pipes are to be provided by the contractor immediately after receipt of the purchase order, so as to make the cut-outs ready by civil



contractor.

- n) The contractor shall make sure that the clamps, brackets, clamp saddles and hangers provided for pipe supports are adequate. Piping layout shall take due care for expansion and contraction in pipes and include expansion joints wherever required.
- o) All pipes shall be accurately cut to the required size in accordance with the relevant BIS code and burrs removed before laying. Open ends of the piping shall be closed as the pipe is installed to avoid ingress of foreign matters. Where reducers are to be made in horizontal runs, eccentric reducers shall be used for piping to drain fully. In other locations concentric reducers may be used.
- p) All buried pipes shall be cleaned and coated with zinc chromate primer and bitumen paint, then wrapped with three layers of fibre glass tissue, each layer laid in bitumen.
- q) Auto purge valve shall be provided with all high points in the piping system for venting. Vent valve shall be of pipe size with screwed joints. Discharge from the vent valves shall be piped through an equal size mild steel, hot galvanized pipe to the nearest drain or sump. These pipes shall be pitched towards drain point.
- r) Tee-off connections shall be through equal or reducing tees. Otherwise ferrules welded to the main pipe shall be used. Drilling and tapping of the walls of the main pipe shall not be resorted to.

4. SPECIAL INSTRUCTIONS AND SPECIFICATIONS

All the piping for soft and raw water piping shall generally be of welded construction. Whenever welding is done for pipes of smaller size special care should be exercised to avoid clogging of flow area with the welding material.

5. INTER CONNECTIONS OF SERVICE AND ELECTRICALS WITH EQUIPMENT

- 5.1 The Supplier shall lay service piping and provide connections with the equipment complying strictly with the equipment manufacturers' instructions. The Supplier shall also carry out all the interconnecting service piping with the various items of plant/system. The work shall be complete with capillary piping if required and connections with instruments and controls supplied with the equipment.
- 5.2 The Supplier shall also carry out electrical connections for equipment with the control panels including equipment lighting as per the wiring diagrams of the equipment suppliers.
- 5.3 Connection shall be made for small electrically operated devices on equipment installed as accessories to, or assembled with equipment. Connections regarding instruments, float switches, limit switches, pressure switches, thermostats and other miscellaneous equipment shall be done as per manufacturers' drawings and Instructions.

6. TESTING, COMMISSIONING AND START-UP

- 6.1 The Supplier shall operate, maintain, and give satisfactory **trial run** of the plant in such manner and for such periods as has been specified in Section (Technical Specifications). All rectification of damages defects during the trial period should be carried out by the Supplier.
- 6.2 The commissioning shall also include the following for each equipment:

Field disassembly and assembly of equipment, instruments and controls where required for access to fixing



or adjustment.

Clean out of lubrication system including chemical cleaning wherever required.

Circulation of lubricant to check flow.

Clean out and check out of all the service lines.

Check out and commissioning of instruments, equipment and plants, filtering of transformer and other oils so that if deteriorated, they shall attain the required properties/standards, specified tests in this regard must be carried out by approved authorities and their satisfactory reports submitted to the Purchaser before start-up.

Closed loop dynamic testing with water wherever required.

Operation under load and gradual load increase to attain maximum rated output.

Trouble shooting during the trial period.

6.3 The Supplier shall demonstrate proper working of all mechanical and electrical controls; safety and protective device, in presence of the Purchaser's engineer and the same should be duly recorded.

Commissioning of automation system:

The supplier should provide a detailed schedule of testing all automation and control systems.

7. PAINTING

All the equipment/machineries like motors, pumps, HT/LT panel, transformer, switch boards, starters, junction boxes, isolators, storage tanks, supporting structures, pipe supports and MS/GI pipes and all exposed and visible iron parts included in the scope of erection/commissioning shall be given double coat of paint of approved shade over a double coat of anti-corrosive primer wherever necessary irrespective of the condition of original paint of equipment machineries/ structures/supports. All surfaces, wherever required, must be properly cleaned from scale, dirt, and grease prior to painting. Spray painting must preferably be used on all the equipment/machineries and wherever practicable. Suitable and necessary cleaning/ wiping of sight/dial glasses, other non-metallic parts, flooring, walls, and other surfaces which have been spoiled by paint during painting must also be carried out by the Supplier.

Lettering and other markings, including capacity and flow direction markings, shall also be carried out by the Supplier on the tanks, pipe lines, starters and wherever else necessary, as directed and as per the standard practice of installation. BIS colour codes and colour charts as mentioned in.

Supply of all paints and all other materials required for painting is included in the scope of The Supplier under this contract.

8. TRAINING OF PERSONNEL

Necessary staff as may be deputed by the Purchaser shall be trained by the Supplier for operating the plant. The personnel will be associated for the training during the installation; testing, commissioning and start-up period and the training tenure shall be extended for a minimum period of one month from the date of commissioning and start-up. This training will be a continuous process during commissioning and stand by period and as described in the Technical Specifications.



Responsibilities of Bidder:

- Developing the process design, complete engineering design, manufacturing and/or supply of equipment/goods/services as per the technical specifications and ensuring best performance of individual equipment/systems/process plant as a whole. The bidder shall avail the assistance of reputed specialists in the respective field wherever required as well as past experiences gained during installation/commissioning of the projects.
- Development of automation services, software, interfaces, etc. wherever applicable and its incorporation in the project.
- Providing technical data, technical literature, production, and service load calculations.
- Arranging for approvals from various Statutory Authorities on behalf of the Purchaser. The statutory fees will be reimbursed by Purchaser on production of receipt.
- First charge of oil/lubricants.
- Execution of project in accordance with prevailing Indian standards, wherever applicable & relevant to this project.
- Testing and commissioning satisfactorily and performance of all equipment in bidder's scope and after sales service at mutually agreed terms.
- Test equipment, test kits, instrumentation and materials required for establishing performance parameters.
- Provide necessary manpower during positioning, pre-commissioning, testing and commissioning along with tests.
- Testing, commissioning of the system under scope as per agreed performance parameters and utility consumption.
- Training Purchaser's personnel in the field of instrumentation automation, management system, plant operation & control, maintenance & repair of systems & equipment.
- Dry Chemical Powder type fire extinguishers shall be provided at strategic points by purchaser.
- Best Hygienic, Environment safety and Human safety practices should be followed while designing and commissioning the equipment.

Responsible for Purchaser:

- Details of civil design, building layout and drainage and sewage details.
- Documents on local site conditions related to climate, access, and communications.
- Temporary water and power supply at one point within the plant premises during erection. Water supply and power shall be free of cost.
- Lighting and domestic wiring system and internal telephone system including the switch boards for lighting. Engineering personnel to liaison with the supplier, Project Manager, and the execution team.
- Permanent water and power supply at the time of pre-commissioning of the plant.
- Adequate staff including operators, supervisors, and engineers for trials.
- All civil works including buildings, roads, cable trench, underground piping, and drainage.
- Provision of and cost of services, raw products, packaging materials & chemicals.
- Timely provision of personnel for training.
- Provide open storage area, lockable store and office space during erection and



commissioning of project.

- Suitable Site fabrication yard
- Telephone and fax on chargeable basis.
- Payment as per agreed terms and conditions.
- Approval of drawing within 10 days from date of submission and decision within a week on any issue which will come up.
- Project manager with team throughout the implementation.
- Lightening protection system & protection against rain.
- Readiness of Civil Building, clear civil fronts in all respects along with necessary utilities within agreed schedule to enable commencement of erection activities to meet the overall completion schedule.
- Availability of required quantity of milk for the designed product to conduct the first run of product trials at the rated plant capacity.

Battery Limit:

Sr. No	Description	Purchaser's Scope	Bidder's Scope
1	Standardised Milk	Milk shall be made available at the Product milk storage tank.	Necessary pipings and connections from product milk storage tanks to respective equipment is to be made as per site condition.
2	Power	Power shall be made available at PCC.	All distribution including glands, support, cable, cable tray (perforated GI), trench, switch gear, conduits, JB, etc.
3	Raw/Soft water	Raw/Soft water shall be made available in Main header.	Raw/soft water distribution shall be done from the Main header of Raw/soft water.
4	Steam	Steam shall be available in Main Header.	Steam distribution shall be done from the Main header of Steam to the consumption point.
4	Drainage	Necessary Drainage system shall be made.	Drainage layout shall be submitted.
5	Compressed air	Compressed air shall be made available at main header.	Distribution of compressed air required for operation including fitting, pipe supports, headers, flexible connections, FRL units etc.
6	CIP system	CIP circuit from existing set up shall be extended to the object.	Necessary assistance for CIP pipings, valves, Pump etc.
7	Civil work	To get executed as per drawing and specifications by concerned bidder.	

9. Statutory and Government Liasoning work



All the statutory and Government liasoning work shall be in supplier's scope. Although, whenever supplier need help of purchaser for statutory and Government liasoning work, purchaser may provide the supportive documents for above work.

CODE of PRACTICE FOR PAINTING OF SERVICE PIPE LINES, EQUIPMENT AND STRUCTURAL WORK

1. PAINTING OF SERVICE PIPE LINES

1.1 On Non-Insulated Pipe Line

1.1.1 Ground colour to be applied throughout the length of the pipeline.

1.1.2 Colour bands to be applied, over the ground colour, near every valve and branch connections as well as in every room near the entry.

1.1.3 The relative proportional widths of the 1st colour band to the subsequent bands shall be 421. The minimum width of colour band shall confirm to the following table:

Nominal Pipe Size	Width of 1 Colour Band	Width of 2 Colour Band
80 NB and below	100 mm	25 mm
100 NB to 150 NB	200 mm	50 mm
200 NB to 300 NB	300 mm	75 mm
350 NB and above	400 mm	100 mm

1.1.4 On the 1st band a white arrow to be put to indicate the direction of flow.

1.1.5 The arrows should be put on the bottom of the pipelines so that the same are visible from below in case of horizontal bank of pipes and on sides in case of vertical bank of pipes.

1.1.6 The valves should be painted with the same colour as the ground colour of the pipeline.

1.2 On Insulated Pipeline but without Aluminium Cladding

Procedure same as above.

1.3 On Insulated Pipeline with Aluminium Cladding

1.3.1 Ground colour to be applied in a minimum length of 1000 mm of the pipe all round near every valve and branch connections as well as in every room near the entry. The complete length of the pipeline should not be painted.



1.3.2 Colour bands should be applied in the middle of every ground colour strip. The relative proportional widths of the 1st colour band to the subsequent bands shall be 4:1:1. The minimum width of colour band shall conform to the following table:

Nominal Pipe Size	Width of 1 Colour Band	Width of 2 Colour Band
80 NB and below	100 mm	25 mm
100 NB to 150 NB	200 mm	50 mm
200 NB to 300 NB	300 mm	75 mm
350 NB and above	400 mm	100 mm

For insulated pipes nominal pipe size means the outside diameter of pipe with insulation

1.3.3 On the 1st band a white arrow is to be put to indicate the direction of flow of the fluid.

1.3.4 The arrows should be put on the bottom of the pipelines so that the same are visible from below in case of horizontal bank of pipes and on slides in case of vertical bank of pipes.

1.3.5 The valves should be painted with the same colour as the ground colour.

1.4 The ground colours and the colours of the 1st and 2nd colour bands have been indicated on the enclosed list for the pipe lines carrying various types fluids and gases. The list also indicates the shade nos. of the colours to be used. In case the exact shade is not available the nearest possible shade in the same colour may be selected.

1.5 Only synthetic enamel paint should be used for the painting and band markings on the pipelines and it should be ensured that the finish should be glossy.

1.6 Where no colour bands have been recommended only the ground colour to be applied as per the above procedure. If only one colour band is recommended the width of the same should be as per the first band and applied on the ground colour. In case of 2 nos. colour bands the 1st band and second band of width as per above table should be applied on the ground colour.

1.7 To avoid mixing of colours, it is recommended to apply the bands only after the ground colour paint is dry and subsequently to apply the arrow only after the first band paint is dry.

2. PAINTING OF EQUIPMENT & STRUCTURAL WORK

All milk storage equipment with Outer M S	Pale cream shade
All M S platforms/ pipe supports/ Pipe bridges and any other Structures	Dark admiral grey shade No 632 of BSI
Hot water set, vacuum heating set, Water pumps, geared motor of Tanks and vats, butter churn, Gearbox, and supports	Original colour
Coal handling equipment	Black
HWG chimney and Generator exhaust	Aluminium paint
Refrigeration compressors and air compressors	Original colour
Air handling units of cold store and deep freeze and butter Packing, making room and lab including ducting	Aluminium paint



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Can washer	Lower half in dark aluminium grey Upper half in aluminium Paint or original colour
Milk weigh scales	Original colour
Refrigeration plant receiver	Dark admiral grey
Atmospheric condensers	Galvanizing
HT 81 LT panels	Original colour
LT distribution switchboards	Original colour

COLOUR CODE FOR PIPELINES AS PER IS 2379-1963

Sr.	Services	Application	Ground colour	First Band	Second Band
1.	Cooling Water	1.Ref.comp. Jacket cooling 2.condenser water piping for ref.	Sea green 217	French blue 166	
2.	HWG Feed Water	HWG feed water piping	Sea Green 217		
3	Hot Water	1.Milk pasteurizer hot water 2.defrosting line for diffuser	Sea green 217	Light grey 631	
4	Drinking Water	Water lines for water coolers	Sea green 217	French blue 166	Signal red 537
5	Treated Water	Soft water lines	Sea green 217	Light orange	
6	Cold Water	Chilled water supply & return lines	Sea green 217	French blue	309
7	Untreated Water	Raw water lines	Sea green 217	white	
8	Boiler Feed Water	Boiler	Sea green 217	Gulf red	
9	Condensate	Steam Line	Sea green 217	Light brown	
10	Compressed Air	All compressed air pipelines	Sky blue 101		
11	Instrument air	Instruments	Sky blue 101	French blue	
12	Vacuum	1.cream pasteurizer	Sky blue 101	black	
13	Soft Water	All plant and Equipment	Sea green 217	Light brown	



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14	Steam	HP steam lines	Aluminium to is 2339		French blue			
15	Furnace	Boiler and Furnaces	Light brown	410	French blue			
16	Diesel	Diesel generating set	Light brown	410				
17	Light Diesel Oil	Hot water generator	Light brown	410				
18	Lubricating Oil	Oil piping lines	Light brown	410				
19	Drainage	All drain lines from equipment	black					
20	Ammonia	All ammonia gas & liquid lines	Signal red	537				

Section IV- Part IV Special Conditions of Contract for Electric Works

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1. Scope

- 1.1 The intent of this specification is to define the requirements for the installation, testing and commissioning of the electrical system like high-tension switchyard with accessories and equipment, transformers, HT. Panels, oil circuit breakers, LT. Panels and power control centers, distribution boards, capacitor banks & panels, power & control cables, remote push button stations, motors, earthing network, etc. Requirement of a particular project shall be as specified in schedule of quantities/ approved drawings or as per the battery limits fixed in the contract.

2. Standards

- 2.1 The work shall be carried out in the best workmanship in conformity with this specification, the relevant specification/codes of practice of the Bureau of Indian Standards, approved drawings and the instructions issued by the Engineer-in-charge or his authorized representative, from time to time. Some of the relevant Bureau of Indian Standards is listed in Table 1.
- 2.2 In addition to these standards, all works shall also confirm to the requirements of the followings:
- Indian Electricity Act and Rules framed there under.
 - Fire Insurance Regulations.
 - Regulations lay down by the Chief Electrical Inspector of the State/State Electricity Board.
 - Regulations lay down by the Factory Inspector of the State.
 - Any other regulations lay down by the local authorities.
 - Installation & operating manuals of original manufacturers of equipment.

3. Equipment and Accessories Specifications

- 3.1. All materials, fittings and appliances to be supplied by the Bidder/Supplier shall be of best quality and shall conform to the specification given hereunder. The equipment shall be manufactured in accordance with current Bureau of Indian Standard Specifications wherever they exist or with the BS or NEMA specifications, if no such BIS are available. In the absence of any specification, the materials shall be as approved by the Owner or his authorized representative.
- 3.2 All similar materials and removable parts shall be uniform and interchangeable with one another.
- 3.3 You must furnish makes of bought out items.

4. Power Cables (HT)



Three core Aluminium conductor screened XLPE insulated armoured shielded and PVC sheathed cables suitable for 11 / 22 / 33 KV, earthed system, conforming to IS 7098 (Part II) - 1988 amended up to date.

5. Power Cables (LT)

Power cables for use on 415 V system shall be of 1100-volt grade, Aluminium conductor, XLPE insulated, PVC sheathed, armoured and overall PVC sheathed, shall be used from PCC to incomer of IMCCS. However, armoured /shielded Copper conductor cables shall be used from IMCC to individual motor

6. Control Cables

Control cables for use on 415 V. system shall be of 1100-volts grade, copper conductor, PVC insulated, PVC sheathed, armoured and overall PVC sheathed, strictly as per IS: 1554(part I)-1976 amended up to date Conductor of cable shall be solid type for sizes up to 2.5 sq. mm and stranded for higher sizes. Un armoured cables to be used only if specifically mentioned in schedule of quantities.

The size of these cables shall be as specified in schedule of quantities or as per erection drawing.
THE MINIMUM CONDUCTOR DIAMETER SHALL BE 1.5 SQMM.

Screened control cables for Analogue signals:

These shall be used for carrying out analogue Signal. Multi -stranded base annealed copper conductor, PVC insulated, cores colour coded, laid up, screened by braiding with ATC copper wire and finally overall PVC sheathed. Sizes of their cable shall be as specified in schedule of quantities/approved drawings. These cables shall be with armouring unless specified otherwise in Schedule of quantities/approve drawings.

7. Cable Trays

These shall be GI /FRP Ladder type for main cables from PCC to IMCC. From IMCC to the individual motor SS 304 cage type trays shall be used. The width of cable tray shall be as per the requirement. Height to be minimum 50mm. For cable trays having width more than 300mm height to be 75mm. Cable trays to be supplied to site in standard lengths of 2.5 M. Necessary accessories of cable trays such as coupler plates for joining cable trays, horizontal and vertical bends, outside riser, inside riser, tee etc. also to be supplied. Plain cable tray covers 1.5mm thick to be supplied if specially required. Sample of cable tray to be got approved from Site in charge before supply.

8. Cable Glands

8.1 These shall be provided at both ends of armoured/ unarmoured electrical cables. Cable glands to be manufactured as per performance requirements of BS 6121 amended as on date, with BRASS material accurately machined and NICKEL finish. Single compression cable glands to be complete with checkout, gland body, 3 nose metal washers, and outer seal rubber ring and



compression nut. Double compression glands to be complete with checkout, gland body, neoprene outer ring, Armour clamping cone, Armour clamping ring, Armour clamping nut, neoprene outer ring, skid washer & outer seal nut. Sample of cable gland to be got approved from the Site In charge before supply. For instruments MOC of cable gland shall be polyamide.

9. Cable Connectors

Cable connectors, lugs/sockets, shall be of copper/**aluminium** alloy, suitably tinned solder less, crimping type. These shall be suitable for the cable being connected and type of function (such as power, control, or connection to instruments, etc.). The current rating of the lugs shall be the same as that of the respective cable conductors. If the **aluminium** lug is terminated on a brass stud or copper bus bar, then bimetallic washer shall be used.

10. Cable Route Markers

10.1 These shall be galvanized Cast Iron plate with marking (LT/HT) diameter 150 mm with 600 mm long 25x25 mm MS. angle riveted/bolted with this plate. Sample to be got approved before use.

11. Cable Indicators

11.1 Individual symbols / numbers printed on yellow strips of glossy PVC should be used for cable indicator.

12. Pipes for Cables

12.1 For lying of cables under floor, G.I. class 'A' pipes shall be used. MS. conduits are not acceptable for this purpose. For laying cable in air whereas cable trays are not being used, MS 'B' class pipe shall be used. Size of pipe shall depend upon the overall outer diameter of cable to be drawn through pipe. To determine the size of pipe, assume that 40% area of pipe shall be free after drawing of cable. In dairy's process area and powder plant wherever required SS-304 pipe, 1.6 mm thick shall be used.

13. Motor Isolators

13.1 These shall be in Aluminium cast housing, completely dust, vermin and weather proof (IP 55), suitable for 30/25 A, 415 volts, 50 Hz with rotary type switch complete with cable gland for incoming and outgoing cables. For dairy's process area and powder plant SS-304 motor isolator shall be used. Final finish of housing to be buffer mirror for SS and powder coated gray for Aluminium housing. Sample to be got approved before supply.

14. Control Junction Box

14.1 These shall be in Aluminium cast housing, completely dust, vermin and weather proof (IP 55). For dairy's process area and powder plant SS-304 junction box shall be used. Final finish of housing to be buffer mirror for SS and powder coated gray for Aluminium housing. Sample to be got approved before use.

15. Remote Push Button Stations

These shall be floor/wall-mounted type as specified in schedule of quantities / drawings. These shall be fabricated from 1.6 mm thick stainless steel sheets (S.S.304). In case of floor-mounted



stations, these shall be supported on 51 mm 'A' class MS. pipe clad with S.S. Pipe. Front cover shall be removable type with suitable rubber gaskets to make them dust, vermin and moisture proof. All outer S.S. surfaces shall be polished to 150 grit finishes.

Each push button station shall be provided with one lockable (key operated) push button to control supply to station. Each feeder of station shall be provided with name plate (white Bakelite), LED type in indication lamp, one 'ON' (Green) push button and one 'OFF' (Red) mushroom push button half turn to lock. Green and Red push buttons shall have contact elements having 1 NO + 1 NC. Indication lamp can be combined with 'ON' (Green) push button in place of providing separate indication lamp and push button. Number of feeders shall be specified in schedule of quantities/drawings.

Sample to be got approved before use.

16. Erection of Equipment

16.1 The cases containing the equipment (being supplied by the purchaser) shall be handed over to the Bidder/Supplier. The Bidder/Supplier shall make his own arrangements for safe transportation of all the items to the erection site and also carry out complete loading/unloading during transportation. Equipment shall not be removed from packing cases unless the floor has been made ready for installing them. The cases shall be opened in presence of the Engineer-in-charge or his authorized representative. These empty packing cases shall be returned to the storage space identified by engineer in charge and any document if found with the equipment shall be handed over to the Engineer-in-charge. Any damage or shortage noticed shall be reported to the Engineer-in-charge in writing immediately after opening of packing cases.

17. Power Control Centers, Distribution Boards, Control Panels & Bus Ducts

- 17.1 Erection: The manufacturers shall deliver electrical panels and bus duct in convenient shipping section. The Bidder/Supplier shall be responsible for final assembly and interconnection of bus bars/wiring. The Bidder/Supplier shall grout foundation channel in the flooring. Switchgears shall be aligned and levelled on their base channels and bolted or tack welded to them as per the instructions of the Engineer-in-charge. The earth bus shall be made continuous throughout the length. Loosely supplied relays and instruments shall be mounted and connected on the switchgears. The contacts of the draw out circuit breakers shall be checked for proper alignment and inter-changeability.
- 17.2 After erection the switchboard shall be inspected for dust and vermin proofness. Any hole, which might allow dust or vermin etc. to enter the panel, shall be plugged suitably at no extra cost.
- 17.3 If the instrument transformers are supplied separately they shall be erected as per the direction of the Engineer-in-charge. The Bidder/Supplier shall fix the cable glands after drilling the bottom top plates of all switchboards with suitable holes at no extra cost.
- 17.4 Range of overload relays/timers etc. shall be checked with requirement of motor/systems to be connected at site and if the same is under-sized/oversized, it shall be brought to the notice of Engineer-in-charge, who shall arrange procurement of correct rated components. However, the Bidder/Supplier shall not charge anything extra for labour for such replacements.



- 17.5 The bus duct shall be suitably supported between switchgear and transformer. The opening in the wall where the duct enters the switchgear room shall be sealed to avoid rainwater entry. The foundation of the switchgear shall be raised suitably for minor adjustment to ensure proper alignment and connection of the bus duct at no extra cost. Expansion joints, flexible connection, etc. supplied by the manufacturer of the bus duct shall be properly connected.
- 17.6 Testing: Before electrical panel is energized, the insulation resistance of each bus shall be measured from phase to ground. Measurement shall be repeated with circuit breakers in operating positions and contact open. Before switchgear is energized, the insulation resistance of all DC control circuits shall be measured from line to ground. Tests shall be performed on all circuit breakers during erection as per Table 2.
- 17.7 Contact alignment and wipe shall be checked and adjusted where necessary in accordance with the breaker manufacturer's instructions. Each circuit breaker shall be drawn out of its cubicle, closed manually and its insulation resistance measured from phase to phase and phase to ground. All adjustable direct acting trip devices shall be set using values given by the Engineer-in-charge / manufacturer. The dielectric strength of insulating oil wherever applicable shall be checked. Before switchgear is energized tests shall be performed on each circuit breaker in its test position as per Table.
- 17.8 Close and trip the circuit breaker from its local control switch, push button or operating handle. Switchgear control bus may be energized to permit test operation of circuit breaker with AC closing with prior permission of the Engineer-in-charge.
- 17.9 Carry out tripping test of the electrically operated circuit breaker by operating mechanical trip device. Test operation of circuit breakers latch, check carriage limit switch if provided. Test proper operation of lockout device in the closing circuit, wherever provided by simulating conditions that would causes a lockout to occur. Trip breaker either manually or by applying current or voltage to each of its associated protective relays. Before switchgear is energized, the test covered above shall be repeated with each breaker in its normal operating position.
- 17.10 Capacitor banks in capacitor control panel shall be tested as per manufacturer's instructions. In addition, test for output and/or capacitance, insulation resistance test and test for efficiency of discharge device shall be carried out.
- 17.11 All electrical equipment alarms shall be tested for proper operation by causing alarms to sound under simulated abnormal conditions.
- 17.12 The Bidder/Supplier shall arrange testing and calibrations of relays. The testing equipment including primary and secondary injection sets (if required) etc. shall also have to be arranged by the Bidder/Supplier. Payment for above work shall be deemed to have been included in the erection of switch boards/ control panels.

18. Sealed Maintenance Free Batteries & Battery Charger

- 18.1 Batteries shall be erected on stands and insulators supplied by the manufacturer of the batteries. Interconnections shall be made with leads supplied by the manufacturer. Filling of electrolyte (supplied by the manufacturers), charging, discharging and recharging shall be carried out under the supervision of the Engineer-in-charge or his authorized representative. The Bidder/Supplier under the supervision of the Engineering-charge or his authorized representative will carry out erection of battery charger and DC board. The Bidder/Supplier shall also offer such facilities as may be required for carrying out tests on the complete battery charger and DC board/AC board.
- 18.2 Battery charger shall be tested for proper operation and to verify the charger delivers its maximum rated output. The Bidder/Supplier shall supply skilled/unskilled labour for



carrying out the test by the engineer-in-charge. Batteries shall be given a boost charge in accordance with the manufacturer's instructions and adjusted for float operation before being placed for regular service.

19. Erection and Testing of Motors

- 19.1 Erection and coupling of motors with machines will be done under the mechanical erection. However, earthing, cable termination, testing and commissioning are covered under this section. Before starting, the alignment and coupling of motors with machines and the insulation resistance of the motors will be measured and recorded by the Bidder/Supplier. The direction of the rotation of the motor shall also be checked before the driven equipment is finally coupled. Motor bearings are to be checked and rectified including supply and changing of grease if required, checking of fans coupling with bodies etc. The Bidder/Supplier shall take adequate precaution and care while executing the work. For all damage due to negligence etc. the Bidder/Supplier shall be responsible to replace/repair at his own cost.
- 19.2 Before connecting power cables to motors the insulation resistance of all motor windings shall be measured. Measurement shall be repeated after power cable terminations are completed and before first charging.
- 19.3 **Motors** shall be **operationally tested** together with the **starting gear** and **auxiliary apparatus** such as push button stations, the contractors, level and pressure controls, signal and alarm apparatus, power, and control circuits etc.
- 19.4 Check the anti-condensation heater and its circuit (if installed).
- 19.5 Check the setting of the thermal overload protection / single phase prevent or. Testing of these devices is to be done wherever required as per the instructions of the Engineering- charge?
- 19.6 **Run all motors uncoupled for a maximum period of 4 hours** before the driven equipment is placed in regular service. Fill up Test Certificate as per Table 3.
- 19.7 All outdoor-installed motors must be shrouded with cover made out of 14-gauge GI sheet with lifting hook and louvers as approved by purchaser.

20. Installation of Cable Network

- 20.1 Cable network shall include power, control and lighting cables which shall be laid in underground trenches, home pipes, open trenches, cable trays, GI pipes, or on building structure surfaces as detailed in the relevant drawings, cable schedules or as per the Engineer-in-charge's instructions. Supply and installation of cable trays, GI pipes/ conduits, cable gland sockets at both ends, isolators, junction boxes, remote push buttons stations, etc shall be under the scope of the Bidder/Supplier. For selection of cable size please refer to Table 5.

21. General Requirements for Handling of Cables

- 21.1 Before laying cables, these shall be tested for physical damage, continuity absence of cross phasing, insulation resistance to earth and between conductors. Insulation resistance tests shall be carried out with 500/1000 volt Meggar.
- 21.2 The cables shall be supplied at site, wound on wooden drum as far as possible. For smaller length and sizes, cables in properly coiled form can be accepted. The cables shall lie by mounting the drum of the cable on drum carriage. Where the carriage is not available, the drum shall be mounted on a properly supported axle, and the cable laid out from the top of the drum. In no case the cable will be rolled on, as it produces kinks, which may damage the conductor.



- 21.3 Sharp bending and kinking of cables shall be avoided. The bending radius for PVC insulated and sheath armoured cable shall not be less than 10 D Where 'D' is overall diameter of the cable.
- 21.4 While drawing cables through GI pipes, conduits, RCC pipe, ensure that size of pipe is such that, after drawing cables, 40 % area is free. After drawing cable, the end of pipe shall be sealed with cotton/bituminous compound.
- 21.5 High voltage (11 kV and above), medium voltage (230 V and above) and other control cables shall be separated from each other by adequate spacing or running through independent pipes/trays.
- 21.6 Armoured cables shall never be concealed in walls/floors/roads without GI pipes, conduits RCC pipes.
- 21.7 Joints in the cable throughout its length of lying shall be avoided as far as possible and if unavoidable, prior approval of site engineer shall be taken. If allowed, proper straight through epoxy resin type joint shall be made, without any additional cost.
- 21.8 A minimum loop of 3 M shall be provided on both ends of the cable, or after every 50 M of uncounted length of cable and on both ends of straight through cable joint. This additional length shall be used for fresh termination in future. Cable for this loop shall be paid for supply and lying.
- 21.9 Cable shall be neatly arranged in the trenches/trays in such a manner so that crises crossing is avoided and final take off to the motor/switchgear is facilitated. Arrangement of cables within the trenches/trays shall be the responsibility of the Bidder/Supplier.
- 21.10 All cable routes shall be carefully measured and cable cut to the required lengths and undue wastage of cables to be avoided. The routes indicated in the drawings are indicative only and the same may be rechecked with the Engineer-in-charge before cutting of cables. While selecting cable routes, interference with structures, foundations, pipeline, future expansion of buildings, etc. should be avoided.
- 21.11 All temporary ends of cables must be protected against dirt and moisture to prevent damage to the insulation. For this purpose, ends of all PVC insulated cables shall be taped with an approved PVC or rubber insulating tape. Use of friction type or other fabric type tape is not permitted. Lead sheathed cables shall be plumbed with lead alloy.
- 21.12 Wherever cable rises from underground/concrete trenches to motors/switchgears/push buttons, these shall be taken in G.I./MS pipes of suitable size, for mechanical protection unto 300 mm distance of concerned cable gland or as instructed by the Engineer-in-charge.
- 21.13 Where cables pass through foundation/walls of other underground structures, the necessary ducts or openings will be provided in advance for the same. However, should it become necessary to cut holes in existing foundations or structures the electrical Bidder/Supplier shall determine their location and obtain approval of the Engineer-in charge before cutting is done.

22. Laying of Cables (Underground System)

- 22.1 Cables shall be so laid in ground that these will not interfere with other underground structures. All water pipes, sewage lines or other structures, which become exposed by excavation, shall be properly supported and protection from injury until the filling has been rammed solidly in places under and around them. Any telephone or other cables coming in the way are to be properly shielded diverted as directed by the Owner.
- 22.2 Cables shall be laid at minimum depth of 750 mm in case of LT & 1200 mm in case of HT, from ground level. Excavation will be generally in ordinary alluvial soil. The width of the trench shall be sufficient for lying of required number of cables.



- 22.3 Sand bedding 75 mm thick shall be made below and above the cables. A layer of bricks (full size) shall be laid on the edge, above sand bedding on the sides of cables and a flat brick to cover cable completely. More than one cable can be laid in the same trench by providing a brick on edge between two cables. However, the relating location of cables in trench shall be maintained till termination. The surface of the ground after back filling the earth shall be made good so as to conform in all respects to the surrounded ground and to the entire satisfaction to the Engineer-in-charge.
- 22.4 For all underground cables, route markers should be used
- 22.5 Separate cable route markers should be used for LT, HT and telephone cables.
- 22.6 Route markers should be grounded in ground with 1:2:4 cement concrete pedestal size 230 x 230 x 300 mm.
- 22.7 Cable markers should be installed at an interval not exceeding 50 M along the straight routes of cables at a distance of 0.5 M away from centre of cable with the arrow marked on the cable markers plate indicating the location of cable. Cable markers should also be used to identify change in direction of cable route and for location of every joint in underground cable.
- 22.8 RCC Hume pipe for crossing road in cable laying shall be provided by Owner. No deduction shall be made for cable lying in home pipe for not providing bricks, sand, and excavation. RCC home pipe at the ends shall be sealed by bituminous compound after laying and testing of cable by electrical Bidder/Supplier without any extra charge.

23. Laying of Cables under Floors

- 23.1 GI class a pipe shall be used for lying of outgoing cables under floors from distribution boards to motors, isolators/junction boxes of motors, starter of motors and push button stations. Preferably one cable shall be drawn through one pipe. Size of pipe shall be such that after drawing of cable 40 % area is free. If length of pipe is more than 30 M, free area may be increased to 50 %.
- 23.2 Use of elbows is not allowed at all and number of bends shall be kept minimum. Instead of using bends with sockets, pipe-bending machine shall be used for making long smooth bends at site.
- 23.3 Ends of pipe shall be sealed temporarily while laying with cotton/ jute/ rubber stopper etc to avoid entry of building material.
- 23.4 Exact location of equipment motor/ isolator/ push buttons etc shall be ascertained prior to lying of pipe.

24. Laying of Cable in Masonry Trenches

- 24.1 Masonry/ concrete trenches for lying of cable shall be provided by Owner. However steel members such as MS angles/ flats etc. shall be provided & grouted by electrical Bidder/Supplier to support the cables without any extra charge. Cables shall be clamped to these supports with Aluminium saddles/ clamps. More than one tier of cables can be provided in the same trench if the number of cables is more. If required cable trays can also be provided in trenches.
- 24.2 Entry of cables in trenches shall be sealed with bituminous MASTIC compound to stop entry of water in trenches.

25. Laying of Cables in Cable Trays



- 25.1 Cable trays and supporting steel members such as MS angle/ channel/ flats etc shall be provided and fixed by the Bidder/Supplier.
- 25.2 Cables shall be fixed in cable trays in single tier formation and cables shall be clamped with Aluminium flat clamps and galvanized bolts/unit.
- 25.3 Earthing flat/ wire can also be laid in cable tray along with cables.
- 25.4 After lying of cables minimum 20 % area shall be spare.

26. Laying of Cables on Building Surface/ Structure

- 26.1 Such type of cable lying shall be avoided as far as possible and will be allowed only for individual cables or small group of cables, which run along structure.
- 26.2 Cables shall be rigidly supported on structural steel/masonry using individual cast/malleable iron galvanized saddles and these supports shall be approximately 400 to 500 mm for cables upto 25 mm overall diameter and maximum 1000 mm for cables larger than 25 mm. Unsightly sagging of cables shall be revenged. Only/GI clamps with GI bolts/nuts shall be used.
- 26.3 If drilling of steel structure must be resorted to, approval must be secured from the Engineer-in-charge and steel must be drilled where the minimum weakening of the structure will result.

27. Termination & Jointing of Cables

- 27.1 Use of Glands: All PVC cable upto 1.1 kV grade, armoured or Unarmoured shall be terminated at the equipment/junction box/ isolators/push buttons/control accessories, etc. by means of suitable size single/ double compression type cable glands. Armour of cable shall be connected to earth point. The Bidder/Supplier shall drill holes for fixing glands wherever necessary. Wherever threaded cable gland is to be screwed into threaded opening of different size, suitable galvanized threaded reducing bushing shall be used for approved type.
- 27.2 In case of termination of cables at the bottom of the panel over a cable trench having no access from the bottom, a close fit holes should be drilled in the bottom plate for all the cables in one line, then bottom plate should be split in two parts along the centre line of holes. After installation of bottom plate and cables with glands, it shall be sealed with cold sealing compound.
- 27.3 Use of Lugs/ Sockets: All cable leads shall be terminated at the equipment terminals, by means of crimped type solder less connectors unless the terminals at the equipment ends are suitable for direct connecting without lugs/sockets.
- 27.4 The following is the recommended procedure for crimped joints and the same shall be followed:
- Strip off the insulation of the cable end with every precaution, not to severe or damage any strand. All insulation to be removed from the stripped portion of the conductor and ends of the insulation should be clean and square.
 - The cable should be kept clean as far as possible before assembling it with the terminal/socket. For preventing the ingress of moisture and possibility of re-oxidation after crimping of the aluminium conductors, the socket should be fitted with corrosion inhibiting compound. This compound should also be applied over the stripped portion of the conductor and the palm surface of socket.
 - Correct size and type of socket/ ferrule/ lug should be selected depending on size of conductor and type of connection to be made. Make the crimped joint by suitable crimping tool. If after



crimping the conductor in socket/ lug, some portion of the conductor remains without insulation the same should be covered sufficiently with PVC tape.

28. Dressing of Cable inside the Equipment

- 28.1 After fixing of cable glands, the individual cores of cable shall be dressed and taken along the cableways (if provided) or shall be fixed to the panels with polyethylene straps. Cable shall be dressed in such a manner that small loop of each core is available inside the panel.
- 28.2 For motors of 20 HP and above, terminal box if found not suitable for proper dressing of Aluminium cables, the Bidder/Supplier shall modify the same without any additional cost. Cables inside the equipment shall be measured and paid for.

29. Identification of Cables/ Wires/ Cores

- 29.1 Power cables shall be identified with red, yellow & blue PVC tapes for trip circuits identification, additional red ferrules shall be used only in the particular cores of control cable at the termination points in the switchgear/control panels and control switches.
- 29.2 In case of control cables all cores shall be identified at both ends by their wire numbers by means of PVC ferrules or self-sticking cable markers, wire numbers shall be as per schematic/connection drawing. For power circuit also wire numbers shall be provided if required as per the drawings of switchgear manufacturer.

30. Cable between Isolators/ Junction box & Motors/ Controls

- 30.1 Wherever possible Copper cables with glands shall be used between isolator/junction box (installed near motor/controls) and motors/controls. If terminal box of the motor or control switch is not suitable for accepting armoured cable or it is difficult to lay, copper conductor, multi-core, Unarmoured flexible cable in PVC flexible conduit steel (reinforced) with flexible conduit glands shall be used.

31. Testing of Cables

- 31.1 Before energizing, the insulation resistance of every circuit shall be measured from phase to phase and from phase to ground. This requires 3 measurements if one side is grounded and 6 measurements for 3 phase circuits.
- 31.2 Where splices or terminations are required in circuits rated above 650 volts, measure insulation resistance of each length of cable before splicing and/or terminating. Report measurements after splices and/or terminations are complete.
- 31.3 DC High Voltage test shall be made after installation on all 1100 Volts grade cables in which straight through joints have been made and all cables above 1100 V grade.
- 31.4 For record purposes test data shall include the measured values of leakage current versus time. The DC High Voltage test shall be performed as detailed below:
- 31.5 Cables shall be installed in final position with the entire straight through joints complete. Terminations shall be kept unfinished so that motors, switchgear, transformer etc are not subjected to test voltage.
- 31.6 The test voltage and duration shall be as per relevant codes and practices of Indian Standards Institution. Fill up the Test Certificate as per Table 4.



32. Earthing Network

32.1 The entire earthing installation shall be done in accordance with the earthing drawings, specification, and instructions of the Engineer-in-charge. The entire earthing system shall fully comply with the Indian Electricity Act and Rules framed there under. The Bidder/Supplier shall carry out any changes desired by the electrical inspector or the Owner in order to make the installation conform to the Indian Electricity Rules, at no extra cost. The exact location of the earth pits, earth electrode and conductors and earthing points of the equipments shall be determined at site, in consultation with the Engineer-in-charge. Any change in the methods, routing, size of conductor etc. shall be subject to approval of the owner/engineer-in-charge before execution.

33. Earth Pit with Electrode

33.1 Plate or pipe type earth electrode with earth pit shall be provided for this work unless otherwise advised by the Engineer-in-charge due to typical site conditions. Earthing electrode and pit shall be as per IS: 3043-1966 (code of practices for Earthing). All earth electrodes shall preferably be driven to a sufficient depth to reach permanent moist soil.

33.2 Prior approval of the engineer-in-charge shall be taken for selecting type of earth electrode (pipe or plate).

33.3 Earth pit centre shall be at a minimum distance of 2 m from nearest building, unless otherwise advised. The minimum 3 m distance shall be maintained between centres of 2 earth pits.

34. Earth Bus, Earthing Lead & Earth Wire/ Strip

34.1 All electrical equipment is to be doubly earthed by connecting two-earth strip/ wire conductor from the frame of the equipment to an earthing pit/ main earthing ring. The earthing ring will be connected via links to several earth electrodes. The cable armoured will be earthed through the cable glands. Conductor size for connection to various equipments shall be as specified in the drawing or as instructed by the Engineer-incharge.

However, the length of the branch leads from equipment to earthing grid/ ring shall not be more than 10 to 15 meters.

34.2 All hardware for earthing installation shall be hot dip galvanized. Spring washers shall be used for all earthing connections of equipment having vibrations.

34.3 Size of earthing lead/ wire shall be as specified in schedule of quantities/ drawings. Table 6 may be considered as general guidelines.

34.4 When earthing wire is to be drawn under floor/in underground, Aluminium wire 10 mm dia. With PVC insulation shall be used. Instead of GI wire, PVC insulated copper conductor wires can also be used.

34.5 However, while deciding type & size of earth lead, the resistance between the earthing system and the general mass of the earth shall be as per IS code of practice. The earth loop impedance to any point in the electrical system shall not be in excess of 1.0 ohms in order to ensure satisfactory operation of protective devices.

34.6 G.I. wire/ Aluminium wire shall be connected to the equipment by providing crimping type socket/ lug.

34.7 Wherever earthing strip to be provided in cable tray, it shall be suitably bolted on cable tray and electrically bonded to the cable tray at regular interval.

34.8 Excavating & refilling of earth, necessary for laying underground earth bus loops shall be the responsibility of the Bidder/Supplier.



- 34.9 Wherever earth leads/ strips/ wire are laid in cable trenches, these shall be firmly and suitably cleared to the walls/ supporting steel structure on which cable is clamped.
- 34.10 The neutral of the transformer shall be connected to earth pit independently and earth pit shall have copper earth plate.
- 34.11 Long runs of GI strip shall be connected at each end with lap type welding to ensure continuity.

35. Two/Four Pole Structure

- 35.1 ISMB 200 x 100 mm to be grounded in concrete 1:2:4 for at least 1/5th length i.e. 2 m size of concrete pedestal 500 x 500 mm. All necessary civil works such as excavation, centering, concreting and back filling is included in Bidder/Supplier's scope of work.
- 35.2 Interconnecting by Aluminium conductor jumpers with connectors/ PG clamps etc.
- 35.3 Installation, testing and commissioning of complete two/four pole structure including ISMB & cross channels, G.O. switch, insulators and other items mentioned under equipment supply for two-pole structure.
- 35.4 Complete structure to be provided with two coats of Aluminium paint.

36. Erection Procedure Guidelines of Instrumentation & Control System

The erection of Instrumentation & Control System shall be carried out generally conforming to General Technical Standards as described herein. However, the Bidder shall select and adopt methods and procedures for equipment erection to suit the nature of equipment and erection work, involved according to the best modern practice and his own experience. Shop tests as well as Site tests shall be performed to ensure that all equipment / subsystems / systems furnished are manufactured and tested conforming to the requirements of the specification and approved Quality Assurance Program. All assembly and erection procedures adopted by the supplier shall be open for inspection and approval by the Client. Acceptance of erection procedures shall not in any way relieve the supplier of his responsibility for proper erection of the equipment. Transmitters, converters and pressure & temperature switches shall generally be installed on Instrument Stands made of 2" SS pipes located at convenient points. Level transmitters shall normally be flanged for direct mounting in the tank / equipment. Temperature / Pressure Stub on equipment and pipelines shall preferably be of same material or higher grade of material Suitable Root Valves shall be provided with every tap-off point. Installation of Pressure and Differential Pressure Transmitter shall be as per standard engineering practice incorporating Drain Valves, Isolation Valves, 2/3-Valve Manifold, Syphon etc. as applicable. For instrument air, SS. Pipe shall be used for air distribution from Battery Limit to the designated point of use. Take-off connections to instruments / actuators shall be with suitable size nipples and shut-off valves. Individual air supply shall be provided by 6 mm OD PU tube through an isolating needle valve and air filter regulator. Perforated Aluminium Trays (minimum 2 mm thick) shall be utilized for routing of signal tubing / cables in field. All cables / tubes in the supporting trays / channels shall be tagged properly. The loading of the cable trays shall not exceed 60 % of the available space. Proper gap between the electrical trays, as per the voltage level, shall be maintained in the cable tray layout. Tray numbers shall be provided at suitable intervals. Rigid and flexible conduits along with necessary fittings shall be used for cable laying from instrument to JB or instrument to trays etc.

37. Statutory and Government Liasoning work



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All the statutory and Government liasoning work shall be in supplier's scope. Although, whenever supplier need help of purchaser for statutory and Government liasoning work, purchaser may provide the supportive documents for above work.

BUREAU OF INDIAN STANDARDS TO BE FOLLOWED FOR ELECTRICAL ERECTION

1	PVC insulated cables (light duty) for working voltage up to 1100 volts	694 1990 Part I & II
2	PVC insulated cables (heavy duty) for Voltage up to 1100 volts	1554 -1988 Part I
3	do for voltage 3.3 KV to 11 KV	1554 - 1988 Part II
4	Specification for polyethylene insulated PVC Sheathed heavy duty electric cables voltage not exceeding 1100 V	5959 - 1970 Part I
5	do voltage 3.3 KV to 11 KV	5959 - 1970 Part II
6	Guide for marking of insulated conductors	5578 -1970 or 5575
7	Code of practice for installation and Maintenance of power cables up to 33 kV	1255 -1983
8	Code of practice for earthing	3043 -1987
9	Guide for safety procedures and practices in electrical work	5216 -1982
10	Code of practice for installation and Maintenance of AC induction motor starters	5214-1969
11	Code of practice for installation and Maintenance of induction motors	900-1992
12	Code of practice for installation and Maintenance of switchgears	10118 - 1982 Part I, II, III, IV
13	Code of practice for installation and Maintenance of transformers	10028 - 1981 Part I
14	Code of practice for electrical wiring Installation, voltage not exceeding 650 V	732-1989
15	Code of practice for electrical wiring Installation (system voltage exceeding 650 V)	2274-1963
16	Guide for testing three-phase induction Motor	4029-1967
17	Guide for safety Procedures & Practices In electrical works	5316
18	XLPE Cables for working voltage up to And including 1100 Volts V	7098 - 1988 Part I
19	-- Do --- up to 33 KV	7098 - 1988 Part II
20	Boxes for enclosures of electrical accessories	51333
21	Electric Power connectors	5561-
22	HRC Cartridge Fuse Link up to 650 V	2208-
23	Code of Practice for Selection, Installation, and Maintenance of Fuse up to 650 V	3108-
24	Cables methods of testing	10810-
25	Danger/ Lattice Boards	3551-
26	National Electric Code	SP: 30



**Minimum size of steel braided LAPP/Concab Copper Cable for various rating of motors
(To be laid between MCC and motors) The starter specification may vary as per site
work condition**

SN	Motor rating HP	Full load Current (Amp.)	Type of starter	Power cable rating (At Ambient Temp. of 45°C
1	0.5	1	Soft starter	4 C X 1.5 sq. mm
2	0.75	1.3	Soft starter	4 C x 1.5 sq. mm
3	1	1.9	Soft starter	4 C X 1.5 sq. mm
4	1.5	2.6	Soft starter	4 C x1.5 sq. mm
5	2	3.7	Soft starter	4 C X 1.5 sq. mm
6	3	4.8	Soft starter	4 C X 1.5 sq. mm
7	4	5.2	Soft starter	4 C X 1.5 sq. mm
8	5	7.8	Soft starter	4 CX 1.5 sq. mm
9	7.5	11.2	Soft Starter	4 C X 2.5 sq. mm
10	10	16	Soft starter	4 C X 2.5 sq. mm
11	12.5	19	Soft starter	4 C X 4 sq. mm
12	15	20.8	Soft starter	4 C X 4 sq. mm
13	20	28	Soft starter	4 C X 6 sq. mm
14	25	34	Soft starter	4 C X 10 sq. mm
15	30	40	Soft starter	4 C X 10 sq. mm
16	40	53	Soft starter	4 C X 16 sq. mm
17	50	65	Soft starter	4 C X 25 sq. mm
18	60	78	Soft starter	4 C X 35 sq. mm '
19	75	96	Soft starter	4 C X 50 sq. mm
20	100	131	Soft starter	4 C X 70 sq. mm
21	125	156	Soft starter	4 C X 120 sq mm
22	150	189	Soft starter	4 C x 150 sq mm
23	180	227	Soft starter	4 C X 185 sq mm
24	215	271	Soft starter	4 C X 240 sq mm
26	250	325	Soft starter	4 C X 300 sq mm
27	275	360	Soft starter	4 C X 185 sq mm 2 runs
28	300	390	Soft starter	4 C X 185 sq mm 2 runs
29	335	400	Soft starter	4 C X 240 sq mm 2 runs
30	375	NA	Soft starter	4 C X 300 sq mm 2 runs

Table 2
Pro forma for PCC, DB, Motor Control Centers Test

SN	Test	Report
1	Circuit (Breaker/Bidder/Supplier Module Designation/ Bus	
2	Insulation resistance (Contacts open, breaker Racked in position)	
A	Between each Phase & Bus (Mega Ohm)	
B	Between each phase and earth (Mega Ohm)	
C	DC and AC control & auxiliary circuits (Mega Ohm)	
D	Between each phase of CT/PT and between CT & PT circuit if any (Mega Ohm)	
3	CT Checks	
A	CT ratio	
B	CT secondary resistance	
C	CT polarity check	
4	Check for contact alignment and wipe	
5	Check/test all releases/ relays	
6	Check mechanical interlocks	
7	Check electrical interlocks	
8	Check switchgear/control panel wiring	
9	Checking breaker/Bidder/Supplier circuits for	
A	Closing- local and remote (wherever applicable)	
B	Tripping-local and remote (wherever applicable)	
10	Opening time of breaker/ contactor	
11	Closing time of breaker/ contactor	



Signature and seal of Engineer-in-charge of Purchaser		Signature and seal of Engineer-in-charge of Bidder/Supplier	
Table 3 Pro forma for motor testing			
SN	Test Report		
1	Name plate details		
A	Voltage		
B	HP / KW		
C	Mounting		
D	Current		
E	RPM		
F	Frame size		
G	Make		
H	Sr No		
I	Others		
2	Insulation test (before cable connection)		
A	Between Phase and Earth (Mega Ohms)		
B	Between each Phase (Mega Ohms)		
3	Insulation test (after cable connection)		
A	Between Phase and Earth (Mega Ohms)		
B	Between each Phase (Mega Ohms)		
4	No load current		
A	R Phase Amps		
B	Y Phase Amps		
C	B Phase Amps		
5	Full load current		
A	R Phase Amps		
B	Y Phase Amps		
C	B Phase Amps		



6	Temperature rise after 4 h run	
A	On no load °C	
B	On full load °C	
C	Ambient temperature during test °C	
7	Operation of thermal overload relay	
A	At normal Full Load current of motor	
B	At twice Full Load current of motor trips in Seconds	
Signature and seal of Engineer-in-charge of Purchase		Signature and seal of Engineer-in-charge of Bidder/Supplier

Table 4 Pro forma for Testing Cables

Sr No	Test Report	
1	Date of Test	
2	Drum Number (from which cable is	
3	Cable From -> To	
4	Length of run of this cable (meter)	
5	Insulation resistance test (In Mega Ohm)	
A	Voltage of Megger Volts	
B	Between core-1 to earth	
C	Between core-2 to earth	
D	Between core-3 to earth	
E	Between core-1 to core-2	
F	Between Core-2 to Core-3	
G	Between Core-3 to Core-1	
6	High Voltage Test (Voltage Duration)	
A	Between Cores and Earth	
B	Between Individual Cores	



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Signature and seal of Engineer-in-charge of Purchaser		Signature and seal of Engineer-in-charge of Bidder/Supplier
Table 6 Sizing of Earthing Lead/ Wire		
Sr No	ITEM	Size
1	Control switches	Copper. wire 14 SWG
2	Motor unto 10 HP	Copper wire 8 SWG
3	Motor above 10 HP unto 125 HP	Copper strip 25 x 3 mm
4	Motor above 125 HP	Copper strip 25 x 6 mm
5	Switch Board	Copper strip 25 x 6 mm
6	Power control centre/ LT panel of sub-station	Copper strip 40 x 6 mm



Section V- Technical Specifications

INDEX

Sub Sections

1. Instructions to The Bidders
2. Bid Structure of Technical Section
3. Design Basis
4. Responsibility
5. Project Management
6. Scope of Supply & Technical Specifications (Tender Package)
7. Battery Limits
8. Deviations
9. Optional Items
10. Drawing, Data & Documentation
11. Process Performance and Consumption Guarantee
12. Technical Evaluation of Bids
13. Bidders Meeting
14. Technical Qualification Applications

**1. INSTRUCTIONS TO BIDDER**

1.1 This Sub - Section of the tender defines the way that bidder is required to structure the presentation of the technical section of their bid.

1.2 All technical data required by the tender is to be provided in the format given in this Sub - Section. If no format is given for any specific item, the bidder may submit bid in their format

1.3 Any bidder not following the required bid document structure of presenting technical data that is not in the required format is liable to be deemed non- responsive

2. BID STRUCTURE OF TECHNICAL SECTION

2.1 The technical section of the bid is to be structured in the same order as Tender Document.

2.2 The bidder is to cover each requirement of the Tender Document by statements, technical data and descriptive material and, in particular to detail the following section.

3. DESIGN BASIS

The bidder is to describe his technical proposal in detail, stating the processes and systems, which he has, applied in designing the plant. Also to highlight any special technical innovations that the bidder proposes to include in the plant that will improve the performance, reduce operating cost or improve product quality. The "Preamble" should commence at the start of the process and work logically through the process. Any such highlights should be cross-referenced with the Bid sub-Section and paragraph number to which they apply.

The bidder is required to follow the Basic of Design in the tender and indicate clearly where additional processes or alternative processes of equipment are considered to be necessary or desirable to achieve optimum plant operation efficiency, optimum product quality within the standards specified, and optimum plant operation convenience. Under the utilities section, quantify the peak and daily loads of each utility and cross-reference this two service load histogram data to be provided with this bid.

Standardised Milk composition:

Sr. No.	Parameter	Unit	Value
1	pH	-	6.6-6.8
2	Milk Fat	%	Min.4.6
3	Milk SNF	%	Min.8.6
4	Milk Protein	%	Min.3.2
5	Acidity	% LA	Max.0.135
6	Alcohol Test(72%)	-	Negative
7	COB test	-	Negative



4. RESPONSIBILITIES

Responsibilities of the Bidder

The bidder is required to specifically state his acceptance or non-acceptance of each clause in this sub-section. Non acceptance shall be deemed a deviation from the tender and should be mentioned in deviations.

Responsibilities of Client

The bidder is required to state here any additional responsibilities that he consider are to be borne by Client besides those described in the tender.

5. PROJECT MANAGEMENT

Time Schedule

The bidder is to state in this subsection the proposed program of implementation from receipt of order to commencement of product trials, to be provided as per Sub - Section 10.

Management Team

The bidder is to provide detail of the management team in terms of designation, accordance with this Sub - Section of the tender. Also to quantify the support that will be given by foreign collaborators, with designation and man months of attendance in India and at site. This bidder is to ensure that the following Sub - Sections are fully detailed and quantify the duration and manpower supplied to each.

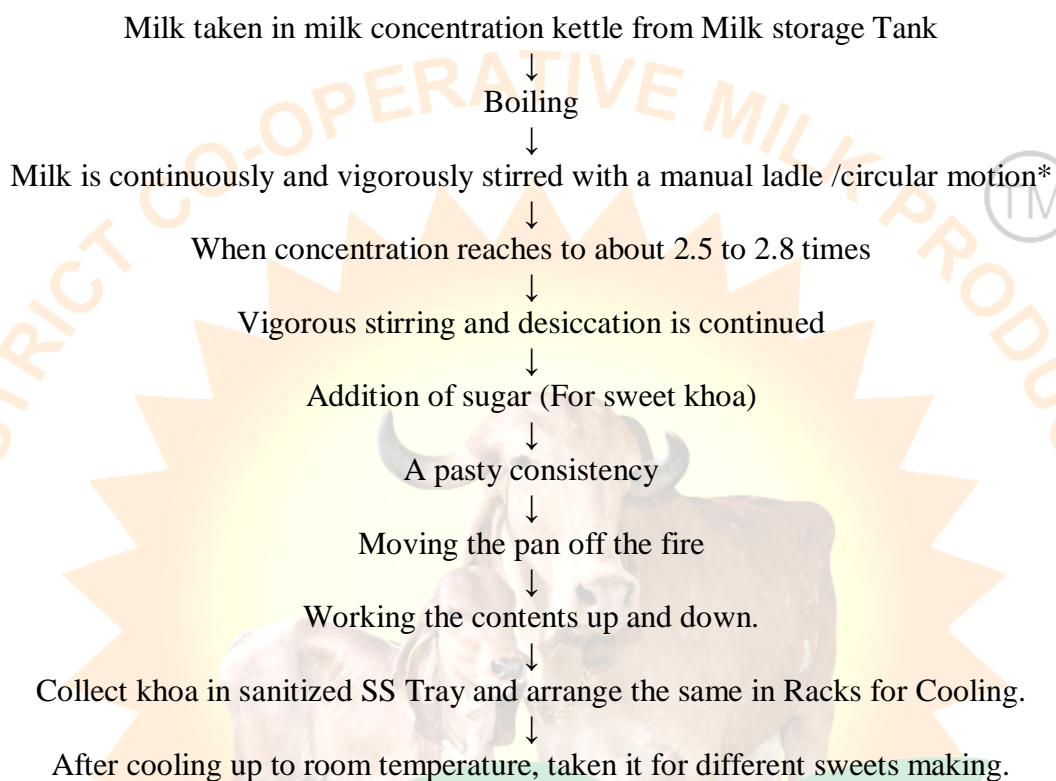
- Commissioning
- Product trials
- Training

6. SCOPE OF SUPPLY & TECHNICAL SPECIFICATIONS (TENDER PACKAGE)

The bidder is required to follow the sequence of the tender Document and to make a statement on each paragraph. Do not leave any item without a clarify statement.

diagram for Khoa and Khoa based sweets.

The Typical Flow Diagram of the Khoa is as below.



The Khoa is then subjected to be transferred to Peda forming machine or any other manual / Mechanized operation-based product like burfi etc. Then after sheeting and cutting the desired cube of respective sweets will be packed in MAP (Modified Atmosphere Packaging) for extended shelf life.



❖ **Equipment and Machinery**

1. Khoa based Sweets - 1000 kg/ day

Sr. No.	Item	Size/ Capacity	Qty
1.01	Khoa Milk Storage tank	5000 Litres	1
1.02	S.S. milk concentration kettles with mechanical scrapping	250 Litres	1
1.03	SS Khoa Kettles without mechanical scrapping	120 Litres	3
1.04	SS Khoa Trays with Trolleys	120 & 6	1
1.05	Dehumidified Room	20*15*10 Ft	1
1.06	Peda Forming Machine with Embossing line	3000 PPH	1
1.07	Working table	Std.	5
1.08	SS pipes, Fitting and Insulations	Lot	1
1.09	Plant wise general utensils & Accessories	Std.	1
1.10	Weighing scale of different capacities	standard	
	Weighing scale:1	1 g to 1000 gm	4 Nos
	Weighing scale:2	up to 5000 gm	2 Nos
	Weighing scale:3	0.1 kg to 50 kg	1 Nos
1.11	Trolley based Vessel Cleaning Chamber	300 lit volumes	1
1.12	Standardized milk storage tank	3000 litres	1
1.13	Online PHE based Milk Heater	500 LPH	1
1.14	Contingency	Standard	1

TECHNICAL SPECIFICATIONS FOR THE MAJOR EQUIPMENTS

1. Khoa based Sweets - 1000 kg/ day conversion

1.01 Khoa Milk Storage tank (HMST).

Description:

The Milk Storage tank shall be used to store the raw/pasteurized chilled milk for further processing. It shall maintain the temperature of stored milk with permissible limit for rise of temperature of 1 °C after 24 h.

1. Capacity- 5000 LTR



2. Construction material- SS-304
3. Thick Inner- 2 MM
4. Thick Outer- 2 MM
5. Milk Measuring Facility- Level transmitter to be displayed on SCADA
6. **Thickness of Insulation:**
 - 100 MM with thermocol and puff. Slope with Flat bottom.
 - Conical top with 450 mm manhole.
 - Conical top outer with insulation.
 - Shaft made from SS304 -60mm.
 - Fan type mixing blade along with baffle plates made from SS304 -8 mm.
 - Flats Gearbox- 3 H.P. side mounted with mechanical seal.
 - Legs made from SS304 schedule 10-150NB Legs with height adjustable.
7. Ball Feet Flange
 - Light and sight glass. Outer ladder SS304.
8. Sampling valve, thermo well connections, Inlet-outlet union connections, 2 nos. of 2" spray CIP valve, 1 no. of 2" outlet SS304 plug valve, MS channel stiffeners between inner and outer shell for strength and support, items for S.S Panel- High- & Low-level switch with alarm and Temperature transmitter and indicator, Level transmitter and indicator Panel – S.S. 304, Motor starter for gearbox motor.

1.02 S.S. milk concentration kettles with mechanical scrapping:

Description:

The SS Khoa Kettle will be used for concentration of milk by open pan evaporation for khoa making through mechanical scrapping using S.S Milk Concentration Kettle with Scrapping.

1. Volumetric Capacity- 120 litres
2. Working Capacity – 40 litres milk per batch
3. Final Qty. of Khoa: 8-12 kg depending of milk composition
4. Concentration factor: 4-5 times of initial milk solids
5. Temperature Range- 100-140 °C
6. Steam operated (Steam trap, Steam Control valve, Steam Pressure Gauge)
7. Incoming Milk Temperature: 70°C



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8. Tilting Type Khoa Kettle - The Kettle has a tilting arrangement through worm gear/ pinion which helps to completely empty the contents from it.
9. Thickness of outer Dish-06mm (SS 304 Grade)
10. Steam Chamber Plate-06mm (SS 304 Grade)
11. Thickness of SS Cladding-20 Gauge
12. Total Processing time per batch: 15 min (20 min Max)
13. Mounted on a SS304 stand.
14. Tilting of Kettles using gear box/lever mechanism for
15. Kettle bottom with hemispherical design for heat transfer. Easily maintainable.

1.03 SS Khoa Kettles without mechanical scrapping

Description:

The SS Khoa Kettle will be used for khoa making manually for particular grade of khoa

1. Volumetric Capacity- 120 litres
2. Working Capacity – 40 litres milk per batch
3. Final Qty. of Khoa: 8-12 kg depending of milk composition
4. Concentration factor: 4-5 times of initial milk solids
5. Temperature Range- 100-140 °C
6. Steam operated (Steam trap, Steam Control valve, Steam Pressure Gauge)
7. Incoming Milk Temperature: 70°C
8. Manual Tilting Type Khoa Kettle
9. Thickness of outer Dish-06mm (SS 304 Grade)
10. Steam Chamber Plate-06mm (SS 304 Grade)
11. Thickness of SS Cladding-20 Gauge
12. Total Processing time per batch: 15 min (20 min Max)
13. Mounted on a SS304 stand.
14. Kettle bottom with hemispherical design for heat transfer. Easily maintainable.

1.04 SS Khoa Trays with Trolleys

Description:

The Khoa shall be filled in SS tray and Trays shall be placed onto SS trolley to transfer it to concern section

1. Tray Size: 18x36x1 inch
2. Number of tray per trolley: 20
3. Material of construction for tray & trolley: SS304
4. Trolley with wheel and lock

1.05 Dehumidified Room

Description:

special application room for storage of Khoa, Sweets and Desserts, in which Humidity is to be controlled with auto controller.

1. Insulation Material: - PUF with coated sheet inner and outer.
2. Insulation Thickness: - 60 mm
3. Size of Room: - 20*15*10 Ft (LBH)

1.06 Peda Forming Machine with Embossing line

Description:

The Peda forming machine with embossing line shall cut the Khoa dough or mass into small pieces and then form them into desired shape of Peda.

Peda shall be embossed with desired Logo.

1. MOC: SS304
2. Output weight without Embossing: 10 g to 50 g per piece
3. Production capacity without Embossing: 80 pieces per min
4. Output weight with Embossing: 20 g to 50 g per piece
5. Production capacity with Embossing: 80 pieces per min
6. Electricity requirement: 3 phase / single phase(as available)
7. Pneumatic requirement (max): Air pressure of up to 5 kg/cm²

1.07 Working table

Description:

For artisanal works of sweets like shaping rolled sweet dough, decorating and garnishing sweets, etc.

To prevent the contamination from floor & helps in hygienic production.

1. MOC: - SS 304
2. Working height: - 3.5 feet
3. Dimensions: As per existing design available with plant.



4. Salient features: Corrosion resistance finish, dimensionally accurate, excellent strength, all edges shall be rounded off.

1.08 SS pipes, Fitting and Insulations

- ✓ Material: SS-304
- ✓ Standard as per Food Industries Norms

1.09 Plant wise general utensils & Accessories

- All spatulas, buckets, sheets etc. required for handling all shop floor activities must be of SS-304 only.
- Brushes, wiper, mops etc. are of sanitary quality.

1.10 Weighing scale of different capacities

The weighing scale shall be used for weighing of raw material, packaging material, semi-finished goods and final products during different activities of manufacturing. It must be supplied with standard weights for calibration (kit). Calibration certificates shall be provided along with all scales. Necessary S.S. platform shall be made to keep weighing scale in plant.

1. Weighing scale: 1 g to 1000 gm
2. Weighing scale: up to 5000 gm
3. Weighing scale: 0.1 kg to 50 kg

1.11 Trolley based Vessel Cleaning Chamber

After manufacturing of sweets, all the utensils and kitchen wares shall be loaded on trolley and trolley shall be placed inside cleaning chamber that cleans all loaded items thoroughly.

1. MOC Trolley and Inner walls of Cleaning Chamber: SS-316 and other parts are of SS-304 L.
2. Cleaning Steps:
 1. Rinse with normal water (20-40 °C)
 2. Cleaning with Hot water (70-90 °C)
 3. Cleaning with Caustic Solution (0.1-2.0% NaOH, 70-90 °C)
 4. Rinse with Hot water (70-90 °C)
3. Trolley: with wheel and locks
4. No stagnation of water/cleaning solution

1.12 Standardized milk storage tank

Description:

The milk storage tank shall be used to store milk, milk fractions like whey, buttermilk, etc. under conditions as per processing schedule.

Tank shall be insulated to maintain the temperature.

- 1 Capacity- 3000 LTR
- 2 Construction material- SS-304
- 3 Thick Inner- 2 MM
- 4 Thick Outer- 2 MM
- 5 Milk Measuring Facility- Level transmitter to be displayed on SCADA
6. Thickness of Insulation:
 - 100 MM with thermocoal and puff. Slope with Flat bottom.
 - Conical top with 450 mm manhole. Conical top outer with insulation.
 - Shaft made from SS304 -60mm.
 - Fan type mixing blade along with baffle plates made from SS304 -8 mm. Flats Gearbox- 3 H.P. side mounted with mechanical seal. Legs made from SS304 schedule 10-150NB Legs with height adjustable
 - Ball Feet Flange - Light and sight glass. Outer ladder SS304.
 - Sampling valve, thermo well connections, Inlet-outlet union connections, 2 nos. of 2" spray CIP valve, 1 no. of 2" outlet SS304 plug valve, MS channel stiffeners between inner and outer shell for strength and support, items for SS Panel-High- & Low-level switch with alarm, Temperature transmitter + indicator, Level transmitter + indicator Panel - S.S. 304, Motor starter for gearbox motor.

1.13 Online PHE based Milk Heater

Description:

To heat the milk from khoa milk storage tank for khoa making in kettle

- 1 Capacity: 500 LPH
- 2 MOC: SS-304,
- 3 Design Temperature: - 40 to +180 °C
- 4 Design Pressure: 0.6 - 2.5 MPa



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5 Area of single plate: 0.03- 3.65 m²

6 Plate Thickness: 0.5 mm- 1.0 mm

1.14 Contingency:

Contingency shall be taken in to considerations with standard norms.

Suggested Makes for Bought out items.

<u>Equipment</u>	<u>Make</u>
Khoa Milk Storage tank	IDMC/TETRAPAK/PRAY ENG.
S.S. milk concentration kettles with mechanical scrapping	PRAY ENGG./MALHAR/HARIOM
SS Khoa Kettles without mechanical scrapping	PRAY ENGG./MALHAR/HARIOM
SS Khoa Trays with Trolleys	PRAY ENGG./MALHAR/HARIOM
Dehumidifer	Tri star/ equivalent
Peda Forming Machine with Embossing line	KP ENGG/ AKSHAR ENGG/Equivalent
SS sheets and pipe fittings	Jindal/ Rensa/ equivalent
Weighing scale	Mettler Toledo/Maruti/Equivalent
Trolley based Vessel Cleaning Chamber	PRAY ENGG./Equivalent
Standardized milk storage tank	IDMC/TETRAPAK/PRAY ENG
Online PHE based Milk Heater	IDMC/TETRAPAK/PRAY ENG

7. BATTERY LIMITS

Battery limits for the plant are mentioned in this document.

8. DEVIATIONS

All technical deviations are to be stated. This is mandatory, and failures to comply with make the bid liable to be deemed non-responsive.

DEVIATION FROM TECHNICAL REQUIREMENT

8.1 This tender document provides guidelines for the processes and equipment to be used in tender package and the "basis of design" and the "standards and specifications", define the qualitative parameters against which equipment will be required to perform.

8.2 It is incumbent on bidder to provide a fully detailed list of equipment and services, which they intend to provide a fully execute the contract inline with the tender document.

8.3 At various points in the tender the purchaser has stated that alternative processes or alternative equipment will be considered. The bidder as part of the bid document shall provide the fully detailed list of such alternatives, together with a consider rationale for employing such alternatives.

8.4 Items, which deviate from the tender proposal, shall be as per design specification of the bidder and shall be treated as a deviation from the text of this tender document. Deviated item should fulfill the minimum performance parameters as specified in the tender.

8.5 This tender does not allow bidders to make exclusions from any part of tender packages for which they bid, and an incomplete list of equipment or an incomplete schedule of services to be provided would be considered as a non-responsive bid.

Table: Technical Deviation Statement Form

Sr.	Clause Reference	Deviation	Remarks (Justification)



Above are the particulars of deviations from the requirements of the tender specifications. The technical specifications furnished in the bidding document shall prevail over those of any other document forming a part of our bid, except only to the extent of deviations furnished in this statement.

Date:

Signature of Authorised Signatory of Bidder/Supplier:

NOTE: Where there is no deviation, the statement should be returned duly signed with an endorsement indicating "No Deviations"

9. OPTIONAL ITEMS

Items that the bidder includes in this Sub - Section that are considered by evaluation team to be essential to the satisfactory operation of the plant, shall be included in the commercial evaluation of the bid.

Optional Items

- 9.1 All items mentioned in the tender packages or in the basis of design as optional items shall be quoted on the basis of equipment of the systems that are supplied "ready to pipe in ". The price for such items shall include supply, installation, commissioning and connections including all necessary piping, fitting, instrumentation, controls, utilities etc.
- 9.2 The entire system shall be designed with all provisions to include the optional items in such a way that no major changes would be required in the system. The provision shall be made in the system irrespective of whether these additional items are supplied or not. The specifications of optional items shall be the same as that of similar items mentioned in tender.
- 9.3 The cost of optional items shall not be included in the calculation of total bid price. In the event that the purchaser, for supply, selects optional items, the quoted price for the optional item shall include all incidental costs of installing that item as part of the contract.

10. DRAWINGS, DATA & DOCUMENTS

The list of drawings and technical documents required for technical evaluation is included in this Sub - Section. These include a number of data sheet formats to be completed by the bidder. The completion of this format is mandatory, and failure to comply will make the bid liable to be deemed non-responsive

Drawings Enclosed with the Tender



A set of site plan drawings & sweet plant design is enclosed along with the tender document for bidder's reference.

10.1 DOCUMENTS REQUIRED FROM THE BIDDER

10.1.1 The Bidder must enclose the following Drawings with the Offer:

- Proposed machinery layout for all equipment in scope as per design indicating the area and height requirement.
- P & ID / Flow diagram for all processes, service and product piping, controls instruments, automation, etc.
- Utilities flow diagram including utility equipment, interconnection piping, controls, instruments, automation etc.
- Single line diagram for electrical distribution system.
- Flow diagram of Khoa making process
- The bidder should follow the guideline for preparation of drawing as described by NDDB – in general. Any deviation in thickness of material of construction and general arrangement will be specifically mentioned in the drawing as remark.

10.1.2 The Bidder must enclose the following Charts/details with the Offer

- Connected & actual requirement of

a) Electrical Power

Each consumption data is to be based on 24-hours basis and is to show clearly the hourly consumption, total daily consumption, peak load, and average load.

- Bar chart for project execution including personnel training program.

10.1.3 The Bidders must enclose the following information in their Offer:

- Category wise staff requirement for the ETP plant on shift and daily basis.
- Literature covering general and technical information for all equipment covered within the scope of the tender.

10.2 PERFORMANCE TESTS

10.2.1 The bidder is required to detail the documentation proposed for performance tests of all major items of equipment and all major processes and services plant. This shall detail the guaranteed vs. actual throughput or output or performance (as relevant) and the tolerance of accuracy. Also the test methods proposed to demonstrate that these guarantees have been met.

10.3 FORMATS OF GUARANTEES:

- Guarantees for throughput of various equipment supplied.
- Service consumption.
- Formats for performance tests.
- Procedure for carrying out the tests.
- Method of measurement
- Test duration
- Evaluation methodology

10.4 UTILITIES CONSUMPTION

The following tables are to be completed by the bidder and returned with bidding documents. This is mandatory and failure to comply may make the bid deemed non-responsive.

Utilities Consumption Data (for 24 hrs operation)		
Power	Peak Load (kW):	
	Total Load (kWh/day):	
	Tolerance (\pm %)	
Air (for Equalization tank & aeration tank separately)	Peak Load (Nm ³ /hr):	
	Average Load (Nm ³ /hr):	
	Total Load (Nm ³ /day):	
	Tolerance (\pm %):	

11. PROCESS PERFORMANCE & CONSUMPTION GUARANTEE

If the plant or any part thereof does not give the agreed process performance and consumption guarantees during the warranty period due to reasons attributable to the supplier, the supplier shall, subject to clause 10.1 and 10.2 below, the action shall be as detailed therein.

11.1. EQUIPMENT PERFORMANCE

- 11.1.1 The satisfactory performance of the equipment/processing plant will be considered achieved if the plant operates above 98% of the rated capacity declared by supplier in the offer.



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- 11.1.2 If the performance is between 95-98% of the rated capacity, penalty will be calculated at 2% of the rupee value of the contract, per 1% of shortfall.
- 11.1.3 If the performance is below 95%, the contractor will be required to upgrade the plant or replace the plant to comply with the above performance criteria. Otherwise the plant will be deemed unacceptable.
- 11.2. SERVICES REQUIREMENT
- 11.2.1 If measure demand of services in the plant is less than 102% of the consumption declared by the contractor, the buyer will accept that the service requirements has been achieved.
- 11.2.2 If the requirement of any of the services in the plant is between 102% and 105% of the declared demand, penalty will be charged at 2% of every 1% rise in consumption for each of the services which falls in the category of excessive demand. For the purpose of this calculation, only the main services will be considered.
- 11.2.3 If the measured demand for services and energy is above 105%, the contractor will be required to up-grade the plant or replace the plant to comply with the declared performance criteria. Otherwise the plant will be deemed un-acceptable
- 11.3. MAXIMUM LIABILITY
- 11.3.1 The maximum liability of suppliers on all counts of penalties including above, Liquidated Damages clause and other liabilities of any kind shall not exceed 10% of Contract value.

12. TECHNICAL EVALUATION OF BIDS

The purchaser will evaluate and compare the technical merits of the bids based on the information supplied by the bidders taking in to account the following factors:

- 12.1 Suitability of the treatment process with regards to treated effluent quality conforming to the standards specified in the tender.
- 12.2 Specifications of individual equipment as well as the system as a whole for material of construction, throughput, operating parameters, etc.
- 12.3 Consumption of consumable materials.
- 12.4 Space requirement.
- 12.5 Cost of spare parts.

13. BIDDERS MEETINGS

Details of the proposed pre-bid meeting are contained in instruction to bidders section- II.

This will be general meeting at which all purchasers of the tender document may attend.

13.1. Bidders may also request technical discussions with the purchaser/ clients project team before the tender closing date. Subjects for discussion at the technical meeting may include:

- Project management
- Technical clarifications
- Scope of supply
- Concept of the design
- Processes
- Equipment designs
- Equipment suppliers
- Plant management
- Quality control
- Battery limits
- Acceptable alternatives
- Equipment suppliers

This will be the only opportunity for bidders to discuss the project in detail with purchaser before the commercial bid opening, and all technical matters should be resolved at meetings.

14. TECHNICAL QUALIFICATION APPLICATION

You must submit this form, duly filled in, along with the supporting as per following checklist given in Table:

Table 3 Technical Competency Classifications		
SN	Category	Please (√)
1	Manufacturer	
2	Clearing & Forwarding Agent	



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3	Stockist	
4	Wholesale Dealer	
5	Authorized Reseller	
6	Authorized Service Agent	
7	Retailer	
8	Trader	
9	Others (please specify)	
Details on Plant		
SN	Plant	Details
1	Location	
2	Description	
3	Type	
4	Size of building	
5	Is property on lease or free hold?	
6	If on lease, indicate date of expiry of lease in each case.	
7	Others (please specify)	

Plant Facilities			
SN	Facilities	Answer	Remark
1	Space available for manufacturing (in m ²)		
2	Space available for storage (in m ²)		
3	Space available for inspection (in m ²)		
4	Are buildings fire resistant? (Y/N)		



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5	Are premises approved by Municipal fire Department? (Y/N)		
6	Are buildings under Municipal fire protection? (Y/N)		
7	Is power & fuel supply adequate to meet production requirements? (Y/N)		
8	Are adequate transportation facilities available? (Y/N)		
9	Are safety measures adequate for performance of proposed contract? (Y/N)		
10	Is adequate material handling equipment available? (Y/N)		
Testing Facilities			
SN	Facilities	Details	
1	List testing equipment available		
2	Give details of tests to be carried out on items offered.		
3	Details of the testing organizations available.		
Quality Control Organization			
SN	Quality Control Method	Response	
1	Are goods offered subject to Batch Test, Random Sampling or full 100% test for quality?		
2	Are tests carried out by factory employees or by a separate testing agency?		
3	Are independent Quality Control Organization checks made and certificates issued?		
Manufacturing Capacity			
SN	Description of Equipment	Capacity	Units Manufactured
			Current year Last Year 2 nd last year
1			
2			
Personnel/ Organization			



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SN	Personnel in	Numbers in levels		
		Managerial	Supervisory	Skilled workers
1	Production			
2	Marketing			
3	Installation and Commissioning			
4	Service			
5	Spare parts			
6	Administrative			
Service Center nearest to our site location				
Location				
Phone no				
SN	Information required on	Details		
1	Number of skilled employees			
2	Number of unskilled employees			
3	Number of engineering employees			
4	Number of administrative employees			
5	List of special repair/ workshop facility available			
6	The storage space available for spare parts (in m ²)			
7	Value of minimum stock of spares available at all the service centers in currency			
8	List of the models/ types of equipment serviced by the Centre in last 2 years			

References¹



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SN	Name of Organization	Address, Telephone, Fax, Contact Person				
1						
2						
List of components usually subcontracted						
1						
2						
Workload for the current and forth coming financial year on quarterly basis						
SN	Financial Year	Quarterly Workload as % of Total Capacity				
		I	II	III	IV	
1	Current Financial Year					
2	Next Financial Year					
List of major projects of similar size and nature previously executed						
SN	Name of the client	Project	Year of award	Year of completion	Capacity/ Products	Value (Currency)
1						
2						
3						
4						
Type of equipment manufactured and supplied (M & S) during last 2 years						
SN	Equipment	Capacity	Qty	Projects	On Hand Order Qty	
1						
2						



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3					
4					
Type of equipment manufactured, supplied, installed, and commissioned (MSIC)					
SN	Equipment	Capacity	Qty	Projects	On Hand Order Qty
1					
2					
3					
4					
Schedules for furnishing technical data and certified drawings after receipt of orders					
1					
2					
Number of weeks required for preparing a bid proposal					



Section VI: Bidding Terms Deviation

Bidding Terms Deviation Statement Form

Sr.	Clause Reference	Deviation	Remarks (Justification)
1			
2			
3			

Signature of Authorised Signatory of Bidder/Supplier:

NOTE:

Above are the particulars of deviations from the requirements of the bidding conditions/terms taken by the Bidder/Supplier.

Where there is no deviation, the statement should be returned duly signed with an endorsement indicating "No Deviations" above.



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Section -VII BID FORM & PRICE SCHEDULE PROFORMA

BID FORM & PRICE SCHEDULE

(To be furnished in the letterhead of the company and submit)

Date:

To,

Dear Sir,

Sub:

Ref:

Having examined the Bidding Documents, including the Addendum, we, the undersigned, offer to supply and/or supply and deliver Goods and Services including installation and commissioning as detailed in the price schedule, in conformity with the said Bidding Documents including the technical specifications and drawings (except to the extent of deviation statement furnished in our bid) and the Conditions of Contract as mentioned in or referred to therein for the sum of:

or such other sums as may be ascertained in accordance with the Schedule of Prices attached herewith and made part of this bid and the said conditions.

We accept all the conditions of the Bidding Document in this Bid Form and this acceptance shall prevail over any other conditions, if any, given in our Bid.

We undertake, if our bid is accepted, to commence and complete delivery of all the Goods and Services as specified in the Schedule of Requirements of the Bid Document, from the date of receipt of your Purchase Order/Notification of Award.

If our bid is accepted, we will obtain the bank guarantee as per the conditions of the Contract for the due performance of the Contract.

We agree to abide by this bid for the period mentioned in the IFB from the date fixed for bid opening and it shall remain binding upon us and may be accepted any time before the expiration of that period.

Until a formal contract is prepared and executed, this bid, together with your written acceptance thereof and your Purchase Order / Notification of Award of Contract (NOAC), shall constitute a binding Contract between us.

We understand that you are not bound to accept the lowest or any bid you may receive.

Dated: _____.

Duly Authorized to sign bid for and on behalf of:

Name of Witnesses:



Price Schedule Form		
Summary Sheet		
SN	Summary Heads	Amount
1	2	3
1	Total Ex-factory, Packed	
2	Total Excise Duty	
3	Total Sales Tax/ WCT	
4	Transportation	
5	Insurance	
6	Total Supply Price delivered at Site (1+2+3+4+5)	
7	Total Installation & Commissioning	
8	Total Bid Price (6+7)	

Notes:

1. Bid must be submitted strictly as per this pro forma (Summary Sheet and items break-up sheet)
2. Amount against Sr. No 1 to 3 & 7 must be the total worked out in items break-up sheet
3. Please quote charges for transportation (Sr. no 4) and insurance (Sr. no 5) as a percent of ex-factory, packed (Sr. No 1)
4. The price shall be quoted in Indian Rupees only.

Signature of Authorised Signatory of Bidder/Supplier



Section -VIII Qualification Application

Qualification Application Form:

You must submit this form (Table 2 and 3), duly filled in, along with the supporting as per following checklist given in Table 1:

Table 1 Checklist for Supportings	
Supporting Required	Please(√)
Latest Balance sheet filed with (Name of Authority) on (Date)	
Latest Profit & Loss Statement from (date) to (date) filed with(Name of Authority) on (date).	
Audited copies ¹ of annual accounts and P & L account of past 3years	
Certificate of Financial Soundness from Bankers of Bidder/Suppliers	
Income Tax Clearance Certificate (Latest)	
Sales Tax Clearance Certificate (Latest)	
Details of Income Tax Registration	
Details of Sales Tax Registration	
Organization Chart	
Annual Report of last three years	

¹ Indigenous Bidder/Suppliers must attach copy of accounts audited under section 44 AB of Income Tax Act. In case the accounts need not be audited, a Chartered Accountant or Manager of a Nationalized Bank should attest the information in this statement.



Table 2 Financial Soundness

General Information			
Name			
Address			
Phones			
Mobile			
Fax			
E-mail			
Contact Personnel with designation			
Financial Information			
SN	Description		Value (Rs)
1	Cash Balance	In Bank	
		In Hand	
		Total	
2	Fixed Assets	Gross	
		Net	
3	Current Assets	Inventories	
		Others	
		Total	
4	Current liabilities	Bank Cash Credit	
		Sundry creditors	
		Others	
		Provisions	
		Contingent Liabilities (including claims not acknowledged, please specify)	
		Total	
5	Capital	Share capital	
		Free reserves	
		Other reserves (please specify)	
6	Term loans from financial institutions and banks		
7	Working capital		
8	Net worth		
9	Debtors and advances considered good	More than 6 months	
		Less than 6 months	

Significant Financial Ratios			
SN	Ratio	Definition	Value



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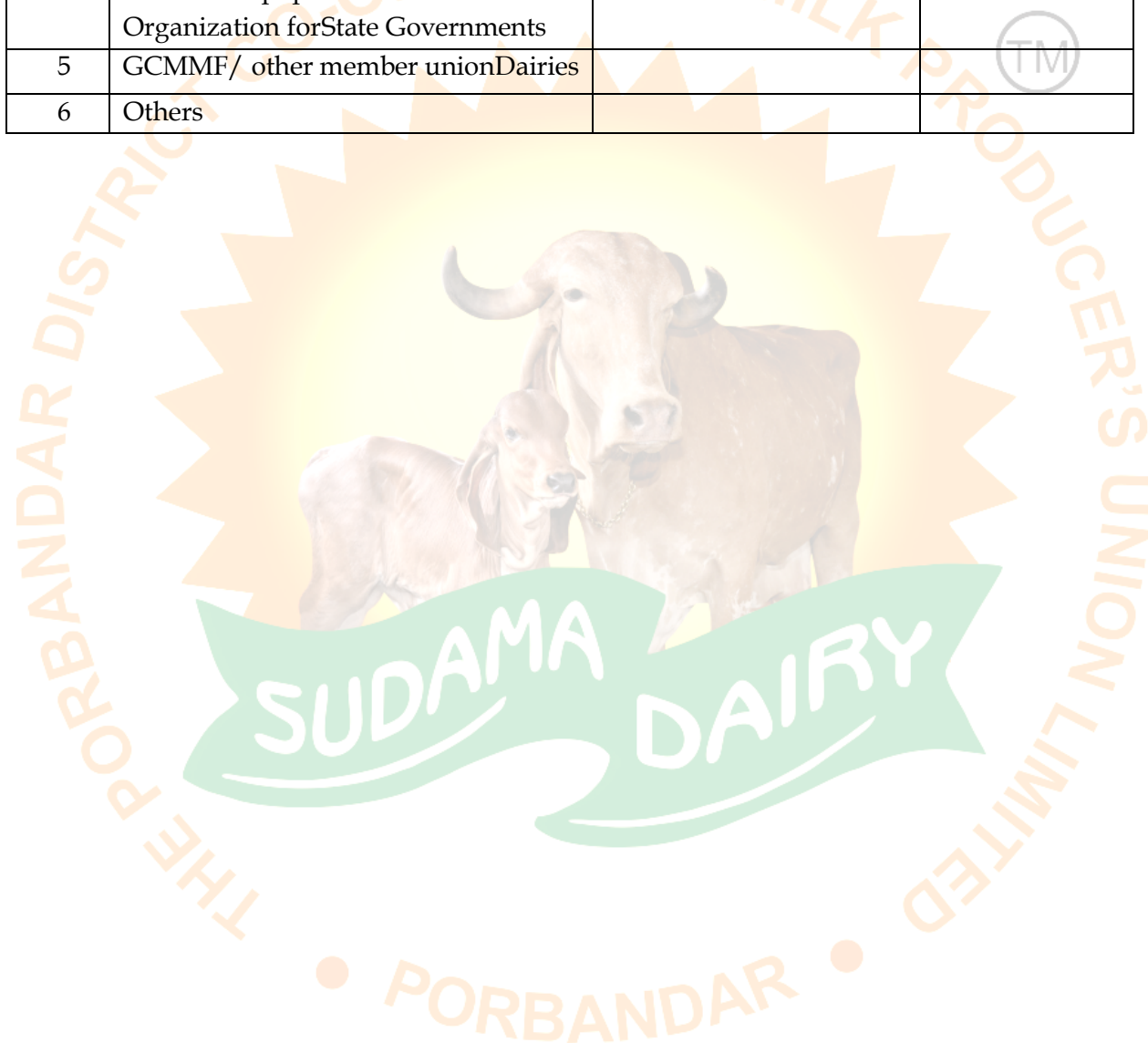
1	Current	Current Assets to Current Liabilities	
2	Acid Test	(Cash + temporary investment held in lieu of cash + current receivable) / current liabilities	
3	Solvency	Total Liability to Net Worth	
Net Profit before Tax			
SN	Period		Value
1	Current period		
2	During the last Financial Year		
3	During the year before last Financial Year		
Financial Arrangements			
SN	Resources		Amount
1	Own		
2	Bank Credits		
3	Others (Specify)		

Sales			
SN	Category of Customers	Value of orders to be executed/Anticipated Sales	
		Current	Next Financial Year
1	Government Department		
2	Commercial		
3	Others		
	Total		
Annual Turnover			
SN	Financial Year (Please begin with current year)		Turnover
1			
2			
3			
4			
5			
6			



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Rate Contracts for the items to be supplied			
SN	Organization	Items	Valid till
1	Directorate General of Supplies & Disposal, Government of India.		
2	National Cooperative Consumers' Federation of India Ltd		
3	Kendriya Bhandar		
4	Central Equipment Stores Purchase Organization for State Governments		
5	GCMMF/ other member union Dairies		
6	Others		





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Section IX Collaborators' Authorisation Form

Collaborators' Authorisation Form

Reference

Dated: _____

Managing Director

Sudama Dairy, Porbandar

Dist.: Porbandar

Bid Reference: _____

Dear Sir,

We, (Name of the Collaborator), an established and reputable supplier of Technology and goods (Name of Technology & Goods) do hereby authorize (Name and address of Agents) to bid, negotiate and conclude the contract with you against above mentioned Bid Reference for the above technology & goods supplied by us.

No company or firm or individual other than (Name of your sole agent/ distributor) are authorized to bid, negotiate, and conclude the contract regarding this business against this specific Bid. (Strike out this, if not applicable)

We hereby extend our full guarantee and, warranty for the technology and goods offered for supply against this invitation for bid by the above firm.

Yours faithfully,

(NAME)

For and on behalf of (Name of Manufacturers)

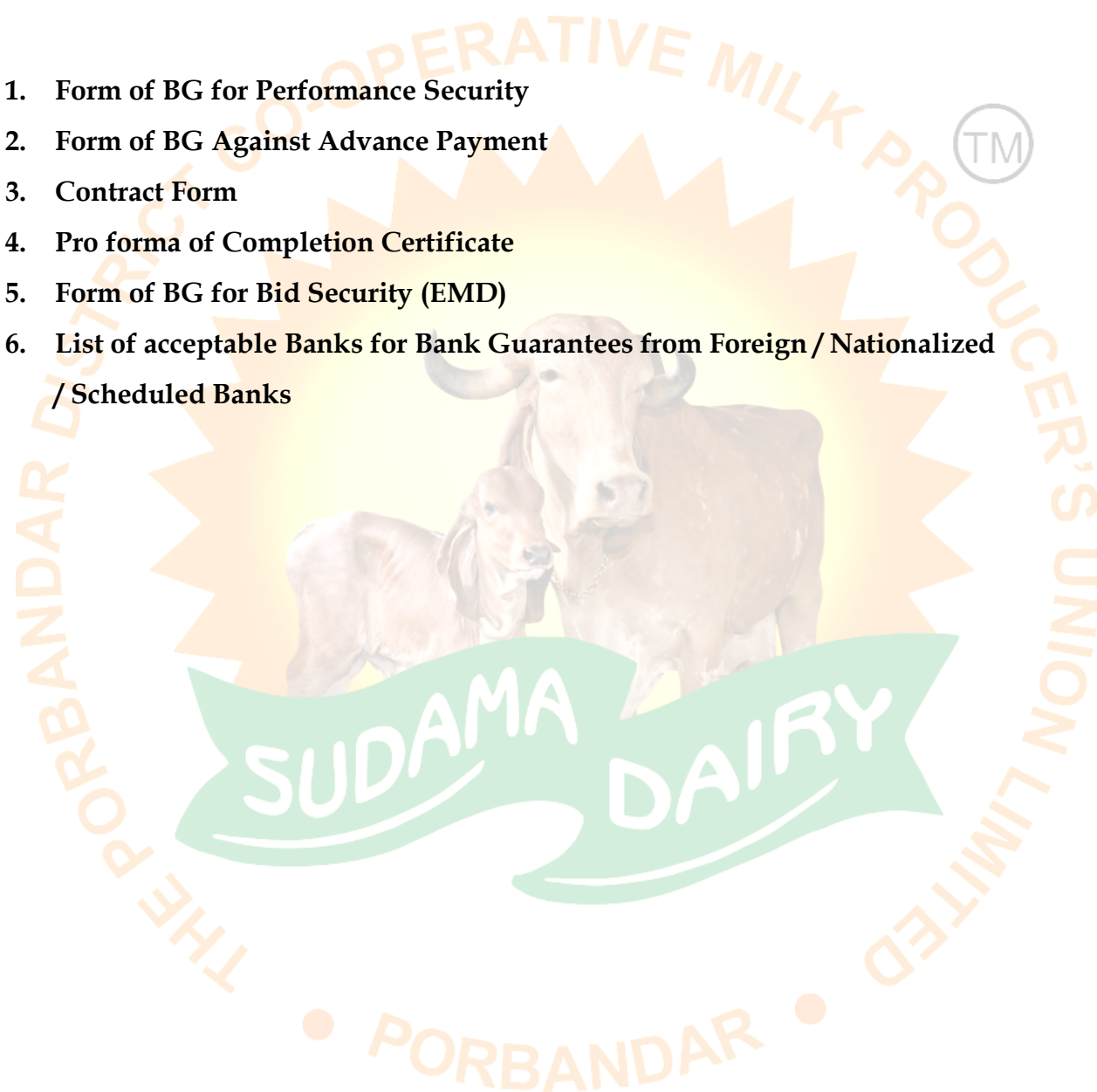
Note: This letter of authority should be on the Letterhead of the Collaborators' concern and should be signed by a person competent and having the power of attorney to bind the Supplier.



APPENDICES- I

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1. Form of BG for Performance Security
2. Form of BG Against Advance Payment
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5. Form of BG for Bid Security (EMD)
6. List of acceptable Banks for Bank Guarantees from Foreign / Nationalized
/ Scheduled Banks





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Form of BG for Performance Security
(On the Non-Judicial Stamp Paper as per the Stamp Act of State Government)

Bank Guarantee Number

Date:

This deed of performance guarantee made this (Date) by (Name and address of the Bank) (herein referred to as the Bank) which expression shall unless repugnant to the context and meaning thereof includes its legal representatives, successors, and assignees and the Porbandar Jilla Sahkari Dudh Utpadak Sangh Limited. (hereinafter referred to as the PJSDUSL) which expression shall unless repugnant to the context and meaning thereof include its legal representative, successors, and assignees.

Whereas, PJSDUSL /its clients have awarded a Contract and Purchase Order bearing Number dated on (Name and address of the party) (hereinafter referred to as the 'Bidder/Supplier') for the supply/ supply and erection and commissioning of. And whereas, the Bidder/Supplier has agreed to submit a performance guarantee in the form of a Bank Guarantee to the PJSDUSL in terms and conditions of the Bidding Document and the Contract which will be kept valid up to calendar months from the date of Bank Guarantee (the period should be till end of warranty period). And whereas, the Bank and its duly constituted agent and officer has already read and understood the contract made between the PJSDUSL and the Bidder/Supplier.

In consideration of the PJSDUSL having agreed to award the contract/purchase order on the Bidder/Supplier, we, (name of the Bank), do hereby guarantee, undertake, promise and agree to with the PJSDUSL, its legal representatives, successors and assignees that the within named (name of the Bidder/Supplier) their legal representatives and assignees will faithfully perform and fulfil everything within the Bidding Document and the Contract/Purchase order on their part to be performed or fulfilled, at the time (time being the essence of the contract) and in the manner therein provided, do all obligations thereunder and we further undertake and guarantee to make payment to the PJSDUSL of Rs _ (Rupees only) being the 10% of the contract value, without any demur in case the Bidder/Supplier, their legal representatives and assignees do not faithfully perform and fulfil everything within the Bidding Document and the Contract/Purchase order on their part to be performed or fulfilled, at the time and in the manner therein provided and do not wilfully and promptly do all obligations hereunder.

In case, the Bidder/Supplier fails to perform or fulfill the Contract/ Purchase Order as per the terms and conditions agreed upon, the PJSDUSL is entitled to demand an amount equal to 10% of the Contract value from the Bidder/Supplier and the demand made by the PJSDUSL by itself will be conclusive evidence and proof that the Bidder/Supplier has failed to perform or fulfill his obligations and neither the Bidder/Supplier nor the Bank will be entitled to raise any dispute regarding the reasons for the failure of performance or fulfilment, on any ground.

We, (name of the Bank), do hereby undertake to pay an amount equal to 10% of the order value, being the amount due and payable under this guarantee without any demur, merely on a demand from the PJSDUSL which has to be served on us before the expiry date of Bank Guarantee i.e. --/--/-- stating that the amount claimed is due by way of non-performance of the contractual



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obligations as aforesaid by the Bidder/Supplier or by reason of the Bidder/Supplier's failure to perform the said contractual commitments/Purchase Order, any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs -- (Rupees _ only) being the amount equal to 10% of the total order value.

We, (name of the Bank), further, agree that the performance guarantee herein contained shall remain in full force and effect for a period of -- calendar months from the date of Bank guarantee (the period should be till end of warranty period) and till the PJSDUSL certifies that the terms and conditions of the said contract/ purchase order have been fully and properly carried out by the said Bidder/Supplier and accordingly discharge the guarantee, unless a demand or claim under this guarantee is made on us in writing by the PJSDUSL on or before _ , we shall be discharged from all liabilities under this performance guarantee thereafter.

We, (name of the Bank), further agree with the PJSDUSL that the PJSDUSL shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Bidding Document and the Contract/Purchase order or to extend the time of performance by the said Bidder/Supplier from time to time or postpone for any time or from time to time and any of the power exercisable by the PJSDUSL against the Bidder/Supplier and to forebear or enforce any of the terms and conditions relating to the said Bidding Document and the Contract/Purchase Order and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Bidder/Supplier, or for any forbearance, act or omission on the part of the PJSDUSL to the said Bidder/Supplier by any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving us.

This guarantee shall be in addition to and without prejudice to any other securities or remedies which the PJSDUSL may have or hereafter possess in respect of the goods supplied or intended to be supplied and the PJSDUSL shall be under no obligation to marshal in favour of the Bank any such securities or funds or asset that the PJSDUSL may be entitled to receiving or have a claim upon and the PJSDUSL at its absolute discretion may vary, exchange, renew, modify or refuse to complete to enforce or assign any security or instrument.

The Bank agrees that the amount hereby guaranteed shall be due and payable to the PJSDUSL on serving us with a notice before expiry of bank guarantee, requiring the payment of the amount and such notice shall be deemed to have been served on the Bank either by actual delivery thereof to the Bank or by dispatch thereof to the Bank by Registered Post at the address of the Bank.

In order to give full effect to the provisions of this guarantee the Bank hereby waives all rights inconsistent with the above provisions and which the Bank might otherwise as a guarantor be entitled to claim and enforce.

We, undertake to renew the Bank Guarantee provided the request for the Bidder/Supplier before the expiry of Bank Guarantee makes renewal.



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We, (Name of the bank) lastly undertake not to revoke this guarantee during its currency except with the previous consent of the PJSDUSL in writing and the guarantee shall be a continuous and irrevocable guarantee up to a sum of Rs (Rupees _____ only).

Notwithstanding anything stated herein before: (i) our liability under this guarantee is restricted to Rs (Rupees _____ only) (ii) The Bank Guarantee shall remain in force till (Date) and (iii) The Bank is liable to pay the guarantee amount or any part thereof under this Bank Guarantee only if the PJSDUSL serves upon the bank a written claim or demand on or before .

Signature with Seal

Code Number:

Place:

Date:

Notes:

Bidder/Suppliers should ensure that the bankers, before submission of the bank guarantees, put seal and code number of the signatory.

Stamp paper is not required in case of foreign Bidder/Suppliers.

The value of stamp duty should be as per latest stamp act of local state government where the bank guarantee issued



Form of BG Against Advance Payment

(On the Non-Judicial Stamp Paper as per the Stamp Act of State Government)

Bank Guarantee Number

Date:

In consideration of the Porbandar Jilla Sahkari Dudh Utpadak Sangh Limited. herein after called 'PJSDUSL') having agreed to grant an advance of Rs _ Rupees only) to M/s (hereinafter called the said Bidder/Supplier) under the terms and conditions of an contract/purchase order Number dated _ made between the PJSDUSL and M/s _ for the supply/ supply, erection and commissioning (hereinafter called the 'said contract/purchase order') on production of a Bank Guarantee for Rs _ (Rupees _ only). We (hereinafter called 'the Bank') do hereby undertake to pay the PJSDUSL an amount not exceeding Rs _ (Rupees only) against any loss/ damage caused to or suffered would be caused or suffered by the PJSDUSL by reason of any breach by the said Bidder/Supplier(s) of any of the terms and conditions contained in the said contract/ purchase order.

We, _____, do hereby undertake to pay the amounts due and payable under this guarantee without any demur merely on a demand from the PJSDUSL which has to be served on us before the expiry date of Bank Guarantee i.e. _____ stating that the amount claimed is due by way of loss or damage caused to or would be caused to or suffered by the PJSDUSL by reasons of any breach by the said Bidder/Supplier(s) of any of the terms and conditions contained in the contract/purchase order or by reasons of the Bidder/Supplier(s) failure to perform the said contract/purchase order, any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee shall be restricted to an amount not exceeding Rs _____ (Rupees only).

We, _____, further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said contract/ purchase order and that it shall continue to be enforceable till all the dues of the PJSDUSL, under, or by virtue of the said contract/purchase order have been fully paid and it's claims satisfied or discharged or till the PJSDUSL certifies that the terms and conditions of the said contract/ Purchase Order have been fully and properly carried out by the said Bidder/Supplier(s) and accordingly discharge the guarantee unless a demand or claim under this guarantee made on us in writing on or before _____, we shall be discharged from all liability under this guarantee thereafter.

We, _____, further agree with the PJSDUSL that the PJSDUSL shall have the fullest liberty without our consent and without affecting in any manner our obligation hereunder to vary any of the terms and conditions of the said contract/ Purchase Order to extend time of performance by the said Bidder/Supplier from time to time or to postpone for any time or from time to time any of the power exercisable by the PJSDUSL against the said Bidder/Supplier and to forbear or enforce any of the terms and conditions relating to the said contract/ Purchase Order and we shall not be relieved from our liability by reason of any such variation, or extension or for any forbearance, act of omission on the part of the PJSDUSL or any indulgence by the PJSDUSL to the said Bidder/Supplier or by any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving us.



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The Bank agrees that the amount hereby guaranteed shall be due and payable to the PJS DUSL on serving us with a notice before expiry of Bank Guarantee requiring the payment of the amount and such notice shall be deemed to have been served on the Bank either by actual delivery thereof to the Bank or by dispatch thereof to the Bank by registered post at the address of the Bank.

We, _____, lastly undertake not to revoke this guarantee during its currency except with the previous consent of the PJS DUSL in writing.

We, _____, undertake to renew the Bank Guarantee provided the request for the said Bidder/Supplier before the expiry of Bank Guarantee makes renewal.

Notwithstanding anything stated herein before: (i) our liability under this Bank guarantee is restricted to Rs. (Rupees only) (ii) The Bank Guarantee shall remain in force till _____ (Date) and (iii) The Bank is liable to pay the guarantee amount or any part thereof under this Bank Guarantee only if the PJS DUSL serves upon the bank a written claim or demand on or before _____.

Signature

Seal Code Number

Place:

Date:

Notes:

Bidder/Suppliers should ensure that the bankers, before submission of the bank guarantees, put seal and code number of the signatory.

Stamp paper is not required in case of foreign Bidder/Suppliers.

The value of stamp duty should be as per latest stamp act of local state government where the bank guarantee is issued.



Contract Form

(On the Non-Judicial Stamp Paper as per the Stamp Act of State Government)

THIS AGREEMENT made on (Date) between Porbandar Jilla Sahkari Dudh Utpadak Sangh Limited., Porbandar, (hereinafter "the purchaser") of the one part and (hereinafter "the Bidder/Supplier") of the other part.

WHEREAS the Purchaser is desirous that certain goods and ancillary services should be provided by the Bidder/Supplier, viz (brief description of goods and services) and has accepted a bid submitted by the Bidder/Supplier in response to the Purchaser's Bidding Document Reference for the supply of those goods and services in the sum of Rs _____ (Rupees _____) (hereinafter "the contract price").

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

In this agreement words and expressions shall have the same meaning as in the Terms and Conditions mentioned in Section III and Section IV and in other sections in the above-referred Bidding Document. The following documents shall be deemed to form, read and construe as part of this agreement:

- The offer and the price schedule submitted by the Bidder/Supplier and as accepted by the purchaser;
- The schedule of requirement/ list of items and the technical specifications in the above referred Bidding Document;
- The terms and conditions in the above-referred Bidding Document;
- The Purchaser's purchase order Number _____ : dated _____

In consideration of the payments to be made by the Purchaser to the Bidder/Supplier as hereinafter mentioned, the Bidder/Supplier hereby covenants with the Purchase to provide the goods and services and to remedy defects therein in conformity in all respects with the provisions of the Purchaser's purchase Order and Bidding Document.

The Purchaser hereby covenants to pay the Bidder/Supplier in consideration of the provision of the goods and services and the remedying of defects therein, the contract price or such other sum as may become payable under the provisions of the purchase order at the times and in the manner prescribed in the Purchase order and bidding document.

IN WITNESS whereof the parties hereto have caused this agreement to be executed in accordance with their respective laws the day and year first above written.

Signed, sealed, and delivered by the authorized signatory for the Purchaser) In the presence of:

- 1.
- 2.

Signed, sealed, and delivered by the authorized signatory for the Bidder/Supplier) In the presence of:

- 1.
- 2.

**Pro forma of Completion Certificate**

(To be issued by the purchaser after successful commissioning of the supplied goods)

Reference

Date

Subject: Certificate of commissioning of supplied goods/ PLANT

This is to certify that the plant section as detailed below has been received in good condition along with all the standard and special accessories (subject to short supply mentioned) in accordance with the Contract/ Specifications. The same has been installed and commissioned. The Performance Test has been done to our entire satisfaction and operators have been trained to operate the plant. The Bidder/Supplier has fulfilled his contractual obligations satisfactorily (subject to unfulfilled obligations mentioned)

Completion Certificate		
Sr. No.	Item	Description
1	Contract Number & Dated	
2	Description of the plant	
3	Quantity	
4	Bill of Lading/ AWB (for Import Contract)/ LR/RR & Dated	
5	Name of the vessel/ transporters	
6	Consignment Note Number & Dated	
7	Name of the consignee	
8	Date of Commissioning & Performance Test	

Details of short supply and recoveries to be made		
SN	Description	Amount to be recovered
1		
2		
Details of unfulfilled contractual obligations		
SN	Description	Amount to be recovered
1		
2		

Signature

Name, Designation & Stamp

Explanatory Notes for filling up the certificates on contractual obligations of the Bidder/Supplier

- Bidder/Supplier has adhered to the time schedule specified in the contract in dispatching the documents/ drawings pursuant to technical specifications.
- Bidder/Supplier has installed and commissioned the plant in time (within the period specified in the contract) from the date of the intimation by the Purchaser in respect of the installation and commissioning of the units.
- Training of personnel as per contractual obligation by the Bidder/Supplier has been done.



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- In the event of documents having not been supplied or installation and commissioning of the plant have been delayed on account of the Bidder/Supplier, the extent of delay should always be mentioned.





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Form of Bank Guarantee for Bid Security

(On Non-Judicial Stamp Paper as per the Stamp Act of Local State Government)

Bank Guarantee Number:

Date:

This Deed of Guarantee made this day of 2016 (two thousand and sixteen) by (Name and the address of the bank), hereinafter referred to as the Bank, which shall unless repugnant to the context and the meaning thereof include its legal representatives, successors and assignees and the Porbandar Jilla Sahkari Dudh Utpadak Sangh Limited, PJSDUSL (hereinafter referred to as the PJSDUSL) which expression shall unless repugnant to the context and meaning thereof include its legal representatives, successors and assignees.

Whereas the PJSDUSL has invited Bids for the supply/ supply & installation of _____, by the Invitation to bid number

AND WHEREAS (Name and Address of the Bidder/Supplier) who having submitted their bids (hereinafter referred to as the Bidder/Supplier) and have agreed to deposit to the PJSDUSL an amount indicated in the Invitation to bid as per the terms and conditions of the Bidding Documents. AND WHEREAS the PJSDUSL is also willing to accept a Bank guarantee in lieu of payment by demand draft of an amount equivalent to the amount of Bid security required to be deposited by the Bidder/Supplier to the PJSDUSL and the guarantee shall be kept valid for 60 days after the day of the opening of the bids.

In consideration of the PJSDUSL having agreed to consider the Bid proposals having submitted by the Bidder/Supplier without depositing the amount of Bid security and against this Bank guarantee, we (name and address of the Bank) hereby undertake and guarantee to make payment to the PJSDUSL the amount of Bid security or any part thereof not deposited by the Bidder/Supplier to the PJSDUSL at any time (time being the essence of the Contract) when the PJSDUSL asks for the same as per the terms and the conditions of the Bidding Document within 120 days from the date of opening of bids.

The Bank further undertakes not to revoke this guarantee during its currency except with the previous consent of the PJSDUSL in writing and the guarantee shall be continuous and irrevocable guarantee up to a sum of Rs _ (Rupees _ only) provided always that any indulgence or forbearance on the part of the PJSDUSL to the said Bidder/Supplier, with or without the consent of the Bank shall not prejudice or restrict remedies against the bank nor shall the same in any event be a ground of defence by the Bank against the PJSDUSL.

In case the PJSDUSL puts forth a demand in writing on the Bank for the payment of amount full or in part against this bank guarantee, the Bank will consider without demur that such demand by itself is a conclusive evidence and proof that the Bidder/Supplier has failed in complying with the terms and conditions stipulated by the PJSDUSL in its Bidding Document and payment will be made to the PJSDUSL without raising any disputes regarding the reasons for such failure on the part of the Bidder/Supplier.



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The Bank shall not be discharged or released from this guarantee by any arrangement between the Bidder/Supplier and the PJSDUSL with or without the consent of the bank or any alterations in the obligations of the parties or by an indulgence, forbearance shown by the PJSDUSL to the Bidder/Supplier.

This guarantee shall be in addition to and without prejudice to any other securities or remedies which the PJSDUSL may have or hereafter possess against the Bidder/Supplier and the PJSDUSL shall be under no obligations to marshal in favour of the Bank any such securities or fund or asset that the PJSDUSL at its absolute discretion may vary, exchange, renew, modify or refuse to complete or enforce or assign any security or instrument.

The Bank agrees that the amount hereby guaranteed shall be due and payable to the PJSDUSL on serving us with a notice before expiry of Bank Guarantee requiring the payment of the amount and such notice shall be deemed to have been served on the Bank either by actual delivery thereof to the Bank or by dispatch thereof to the Bank by Registered Post at the address of the Bank.

In order to give full effect to the provisions of this guarantee the Bank thereby waives all rights inconsistent with the above provisions and which the Bank might otherwise as a guarantor be entitled to claim and enforce.

The guarantee shall remain in force until _ and the bank undertakes to renew the Bank Guarantee provided the Bidder/Supplier before the expiry of Bank Guarantee makes the request.

Notwithstanding anything stated herein before: (i) our liability under this guarantee is restricted to Rs _____ (Rupees _____ only) (ii) The Bank Guarantee shall remain in force till (Date) and (iii) The Bank is liable to pay the guarantee amount or any part thereof under this Bank Guarantee only if the PJSDUSL serves upon the bank a written claim or demand on or before (Date).

Place:

Seal Code Number.

SIGNATURE

Note:

Bidder/Suppliers should ensure that the banker before submission of the bank guarantees puts the seal and code number of signatory.

Stamp paper is not required in case of foreign Bidder/Suppliers.

The value of stamp duty should be as per latest stamp act local state government from where the bank guarantee issued.



Bank Guarantees from Foreign and Scheduled Banks

Bank Guarantee from all nationalized banks are acceptable. Other than the Nationalized Banks, BGs from the following banks shall also be acceptable:

1. Scheduled Banks:

- IDBI Bank
- ICICI Bank
- UTI Bank
- HDFC Bank

